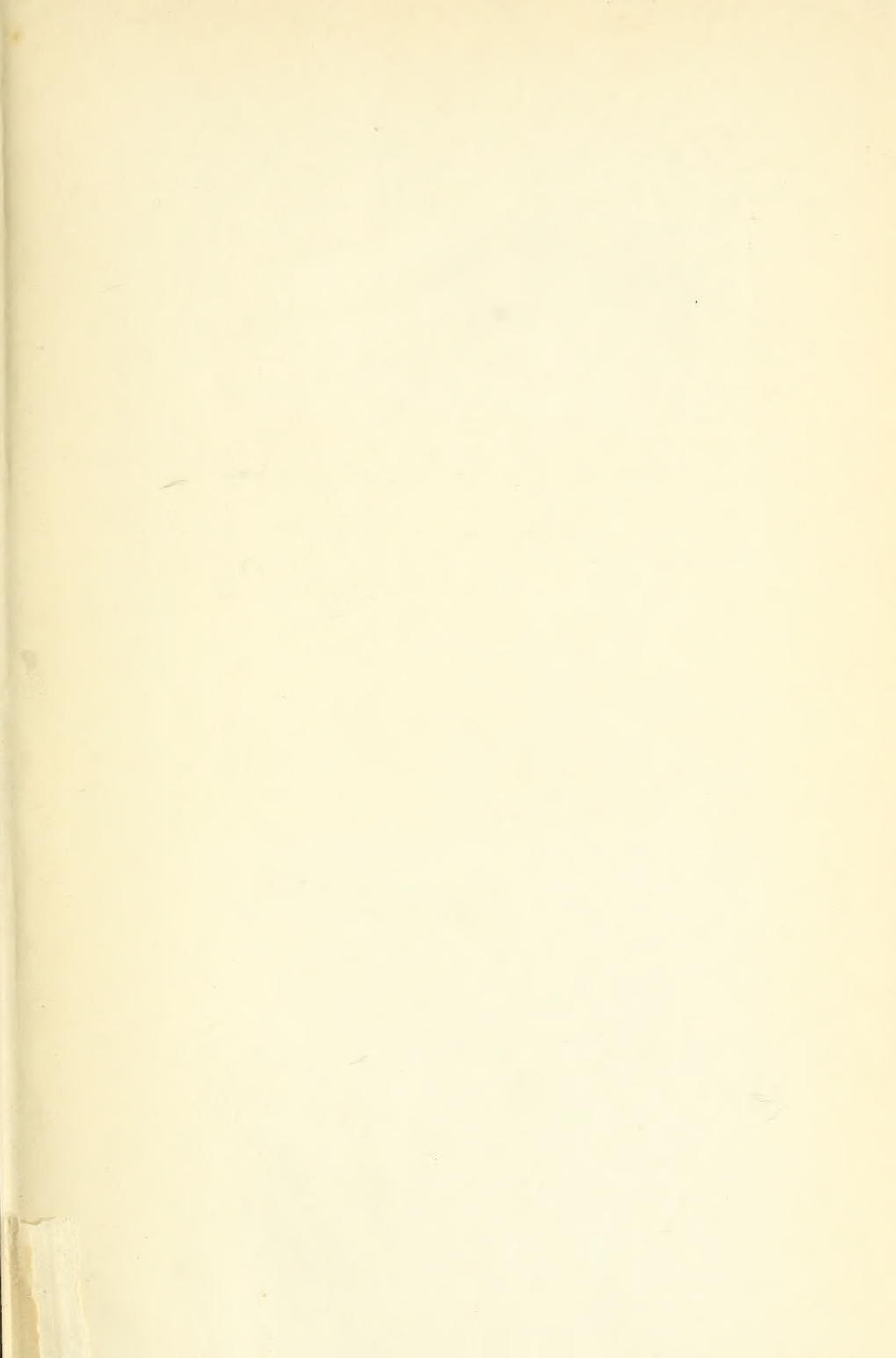
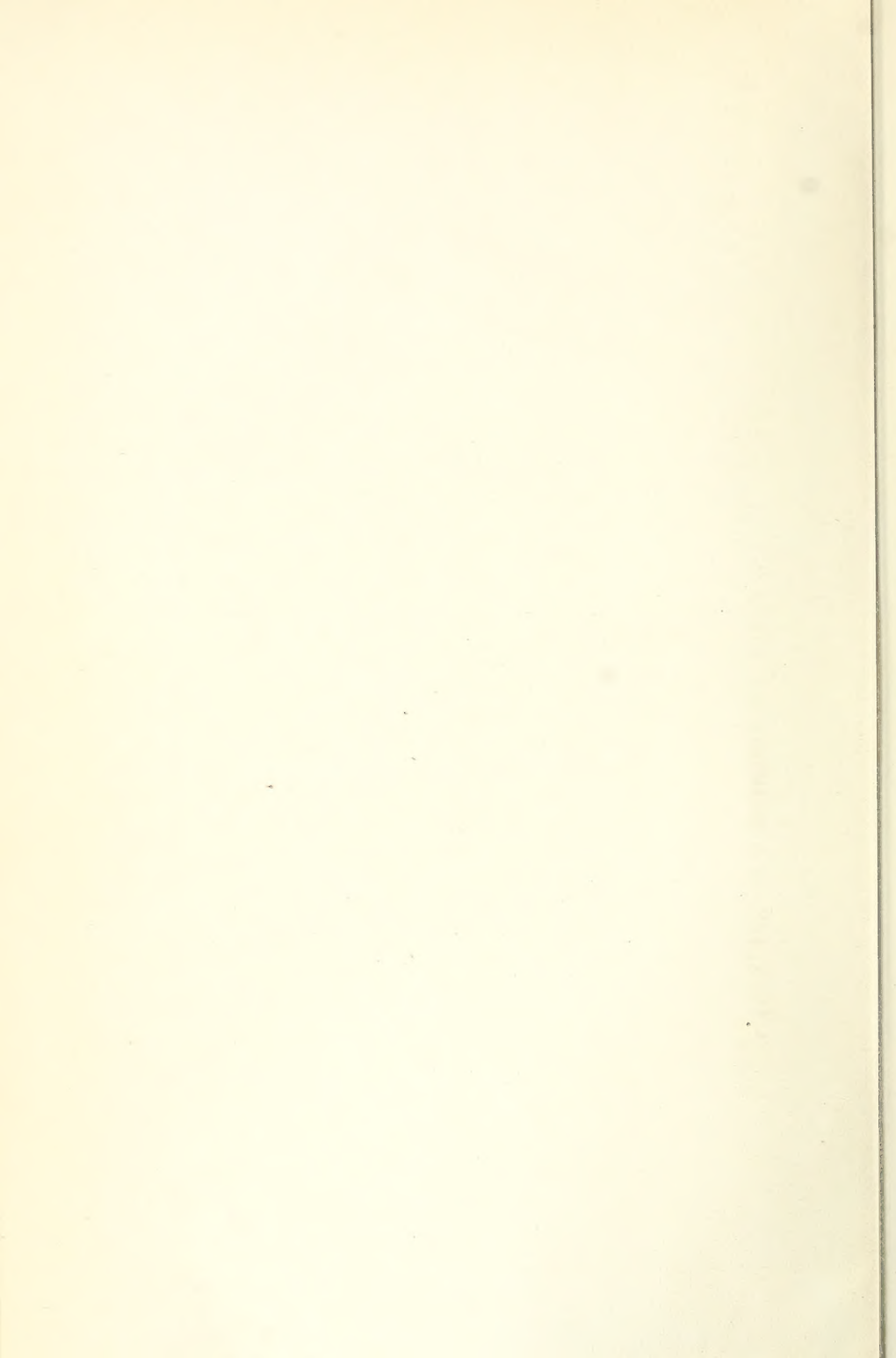




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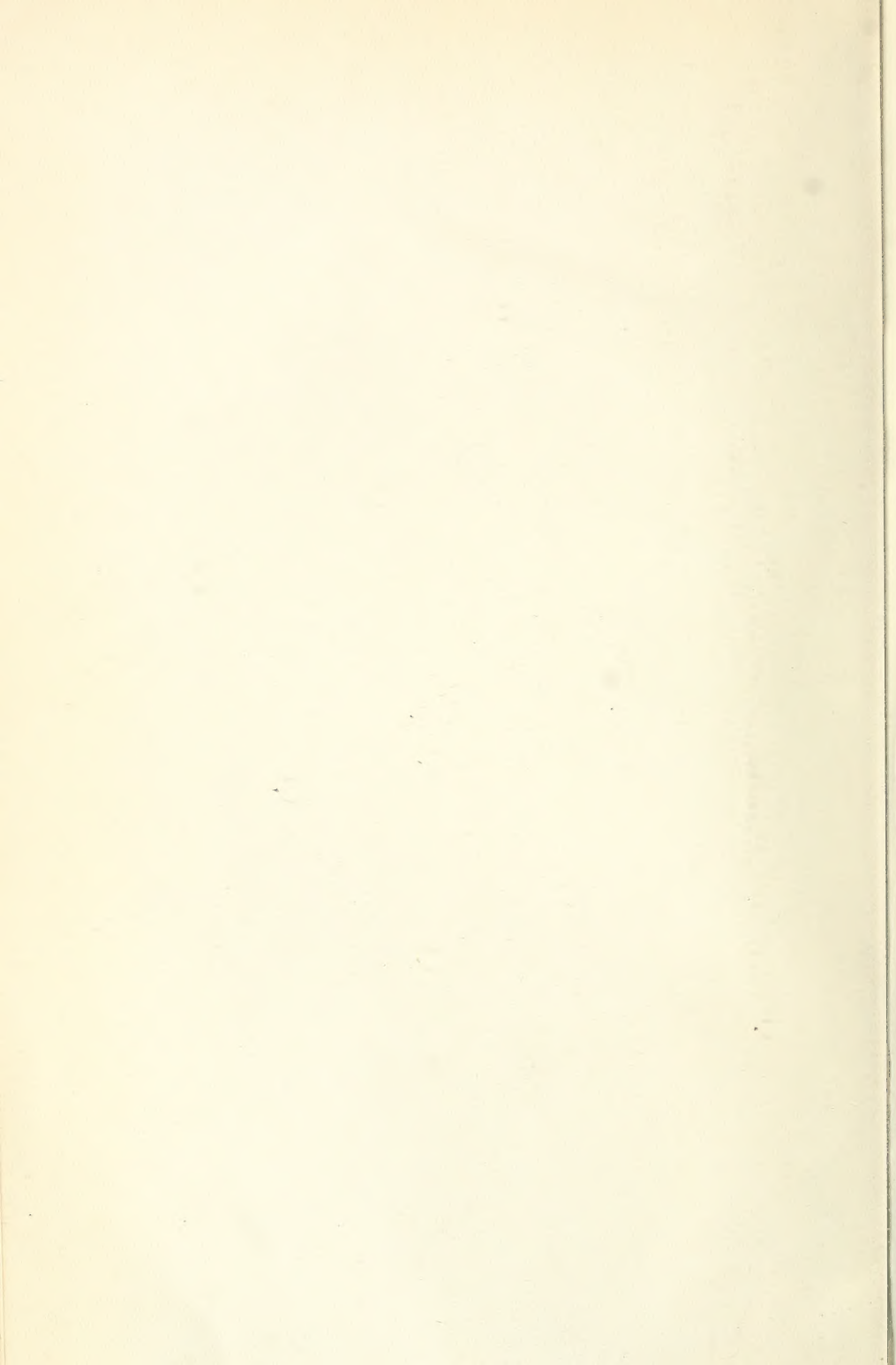












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American Psychiatric Association

# PROCEEDINGS

OF THE

American Medico-Psychological Association

AT THE

FIFTY-NINTH ANNUAL MEETING

HELD IN

WASHINGTON, D. C., MAY 12-15, 1903.

[Vol. 10]



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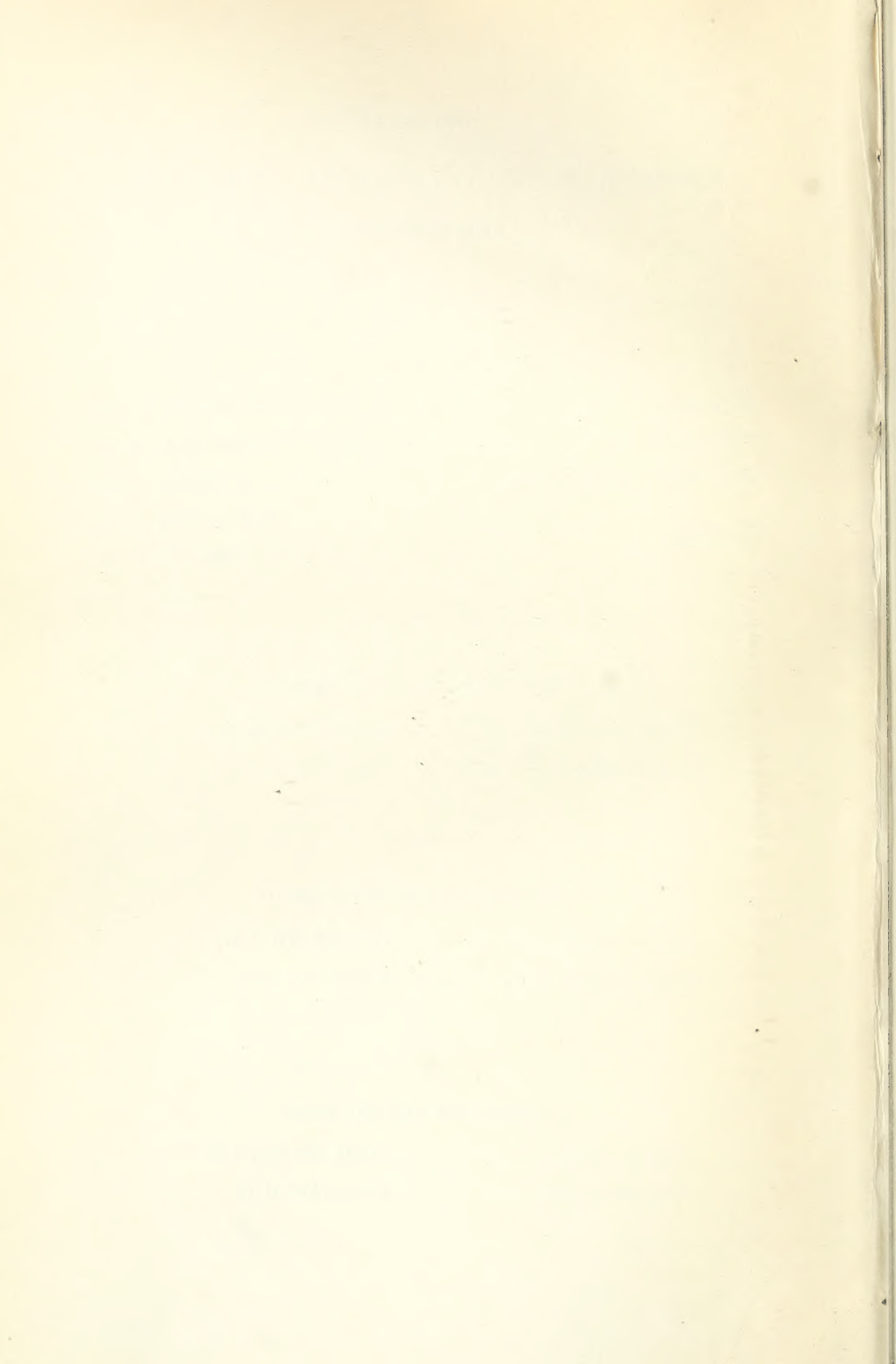
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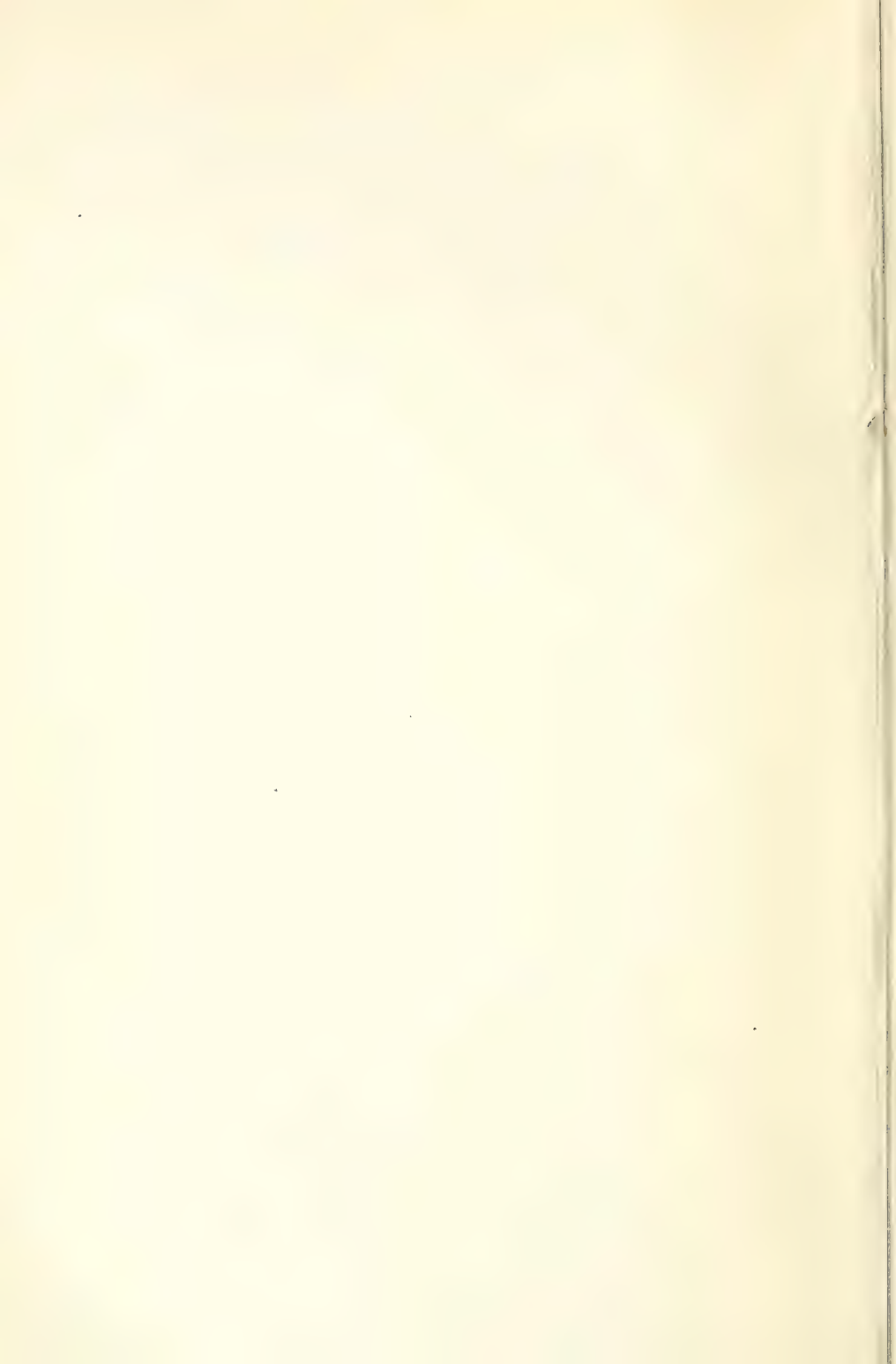
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## *Additions and Changes to March 22, 1904.*

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### ERRATUM.

Page 175 Line 12 for "tabulations" read "fabrications."



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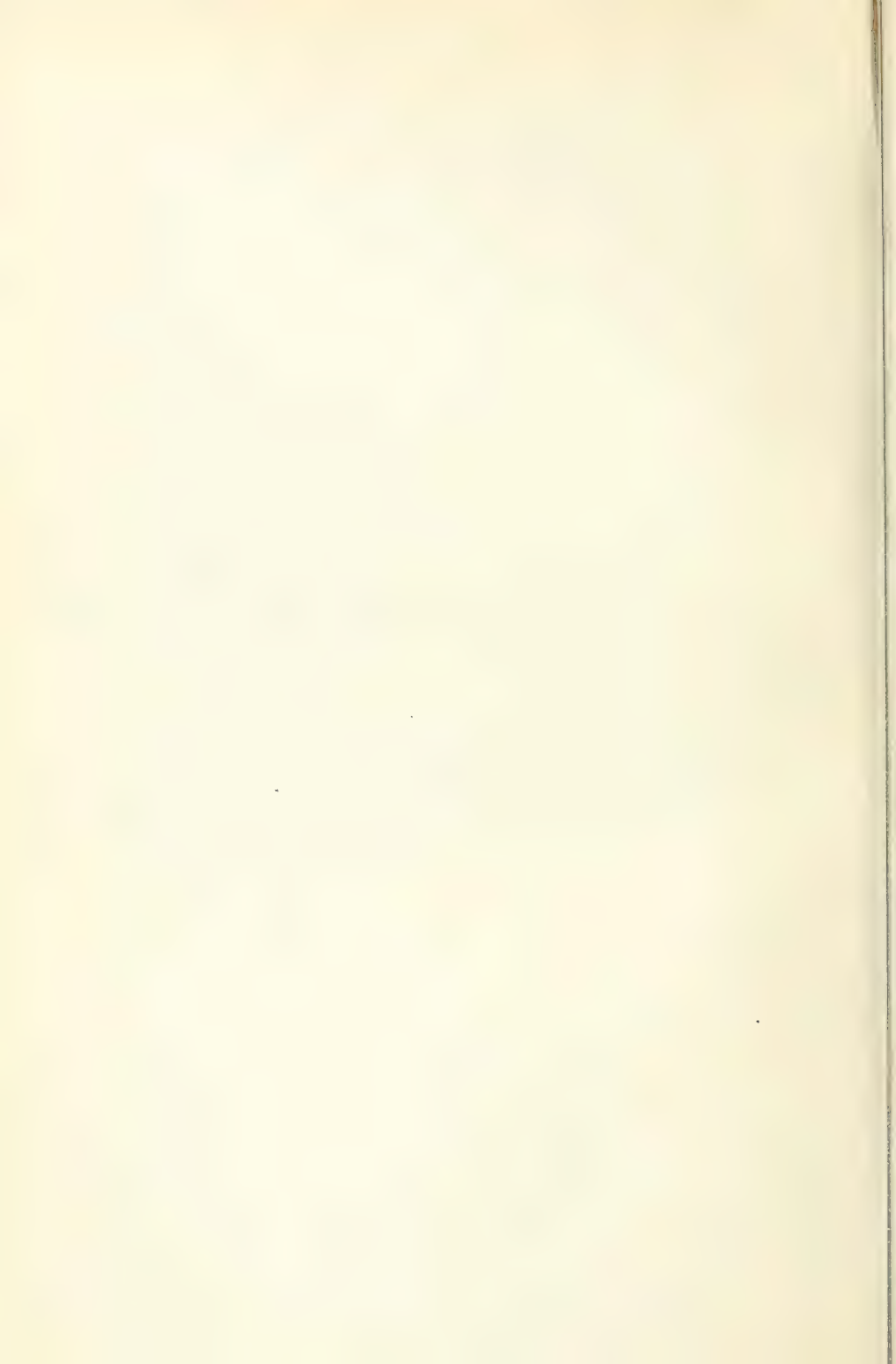


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F. W. Langdon, M. D., 5 Garfield Place, Cincinnati.

OREGON—OREGON STATE INSANE ASYLUM, SALEM.

Henry Waldo Coe, M. D., Mt. Tabor Sanitarium and Mindsease Retreat, Portland.

PENNSYLVANIA—PENNSYLVANIA HOSPITAL FOR THE INSANE, PHIL'A.

John B. Chapin, M. D., Superintendent.

A. R. Moulton, M. D., Senior Assistant Physician.

Henry B. Nunemaker, M. D., Assistant Physician.

Eli E. Josselyn, M. D., Assistant Physician.

FRIENDS' ASYLUM FOR THE INSANE, FRANKFORD, PHILADELPHIA.

Robert H. Chase, M. D., Superintendent.

Seymour DeWitt Ludlum, M. D., Assistant Physician.

PHILADELPHIA HOSPITAL, INSANE DEPARTMENT, PHILADELPHIA.

STATE HOSPITAL FOR THE INSANE, NORRISTOWN.

D. D. Richardson, M. D., Resident Physician Department for Men.

Mary Moore Wolfe, M. D., Resident Physician Department for Women.

PENNSYLVANIA STATE HOSPITAL, HARRISBURG.

H. L. Orth, M. D., Superintendent.

W. E. Wright, M. D., Assistant Physician.

## STATE HOSPITAL FOR THE INSANE, WARREN.

Morris S. Guth, M. D., Superintendent.

## STATE HOSPITAL FOR THE INSANE, DANVILLE.

Hugh B. Meredith, M. D., Superintendent.

W. Herbert Adams, M. D., Assistant Physician.

Gilbert T. Smith, M. D., Assistant Physician.

## WESTERN PENNSYLVANIA HOSPITAL FOR THE INSANE, DIXMONT.

Henry A. Hutchinson, M. D., Superintendent.

## PENNSYLVANIA EPILEPTIC HOSPITAL AND COLONY FARM, OAKBOURNE.

## PENNSYLVANIA TRAINING SCHOOL FOR FEEBLE MINDED, ELWYN.

## ASYLUM FOR THE CHRONIC INSANE, WERNERSVILLE.

S. S. Hill, M. D., Superintendent.

Charles K. Mills, M. D., Philadelphia.

Charles B. Mayberry, M. D., Retreat.

Jane Rogers Baker, M. D., Embreeville.

C. Spencer Kinney, M. D., Easton.

Susan J. Taber, M. D., Norristown.

Edward E. Mayer, M. D., Pittsburgh.

Augustus A. Eshner, M. D., 224 S. Sixteenth St., Philadelphia.

F. Savary Pearce, M. D., 1409 Locust St., Philadelphia.

Arno C. Voigt, M. D., Retreat.

## RHODE ISLAND—BUTLER HOSPITAL, PROVIDENCE.

G. Alder Blumer, M. D., Superintendent.

Henry C. Hall, M. D., Assistant Physician.

Wm. McDonald, M. D., Assistant Physician.

## STATE HOSPITAL FOR THE INSANE, CRANSTON (HOWARD P. O.).

George F. Keene, M. D., Superintendent.

## SOUTH CAROLINA—STATE HOSPITAL FOR THE INSANE, COLUMBIA.

J. W. Babcock, M. D., Superintendent.

J. L. Thompson, M. D., Assistant Physician.

## SOUTH DAKOTA—SOUTH DAKOTA HOSPITAL FOR THE INSANE, YANKTON.

L. C. Mead, M. D., Superintendent.

## TENNESSEE—CENTRAL HOSPITAL FOR THE INSANE, NASHVILLE.

John A. Beauchamp, M. D., Superintendent.

Albert E. Douglas, M. D., Assistant Physician.

EASTERN HOSPITAL FOR THE INSANE, KNOXVILLE.

Michael Campbell, M. D., Superintendent.

WESTERN HOSPITAL FOR THE INSANE, BOLIVAR.

John P. Douglass, M. D., Superintendent.

William A. Cheatham, M. D., Nashville.

TEXAS—HOSPITAL FOR THE INSANE, AUSTIN.

B. M. Worsham, M. D. Superintendent.

NORTH TEXAS HOSPITAL FOR THE INSANE, TERRELL.

John S. Turner, M. D., Superintendent.

SOUTHWESTERN INSANE ASYLUM, SAN ANTONIO.

Marvin L. Graves, M. D., Superintendent.

UTAH—UTAH STATE MENTAL HOSPITAL, PROVO CITY.

Daniel H. Calder, M. D., Assistant Physician.

VERMONT—BRATTLEBORO RETREAT, BRATTLEBORO.

Shailer E. Lawton, M. D., Superintendent.

Whitefield N. Thompson, M. D., Assistant Physician.

VERMONT STATE HOSPITAL FOR THE INSANE, WATERBURY.

M. Hutchinson, M. D., Superintendent.

Clayton G. Andrews, M. D., First Assistant Physician.

VIRGINIA—EASTERN STATE HOSPITAL, WILLIAMSBURG.

L. S. Foster, M. D., Superintendent.

CENTRAL STATE HOSPITAL, PETERSBURG.

William F. Drewry, M. D., Superintendent.

J. H. Garlick, M. D., Assistant Physician.

WESTERN STATE HOSPITAL, STAUNTON.

Benjamin Blackford, M. D., Superintendent.

SOUTHWESTERN STATE HOSPITAL, MARION.

R. J. Preston, M. D., Superintendent.

WASHINGTON—WESTERN WASHINGTON HOSPITAL FOR THE INSANE, FORT  
STEILACOOM.

EASTERN WASHINGTON HOSPITAL FOR THE INSANE, MEDICAL LAKE.

WEST VIRGINIA—WEST VIRGINIA HOSPITAL FOR THE INSANE AT  
WESTON, WESTON.

A. H. Kunst, M. D., Superintendent.

## WEST VIRGINIA HOSPITAL FOR THE INSANE AT SPENCER, SPENCER.

A. J. Lyons, M. D., Superintendent.

## WEST VIRGINIA ASYLUM AT HUNTINGTON, HUNTINGTON.

L. V. Guthrie, M. D., Superintendent.

## WISCONSIN—WISCONSIN STATE HOSPITAL FOR THE INSANE, MENDOTA.

E. L. Bullard, M. D., Superintendent.

## NORTHERN HOSPITAL FOR THE INSANE, WINNEBAGO.

W. A. Gordon, M. D., Superintendent.

## MILWAUKEE HOSPITAL FOR THE INSANE, WAUWATOSA.

M. J. White, M. D., Superintendent.

## ASYLUM FOR THE CHRONIC INSANE, WAUWATOSA.

William F. Beutler, M. D., Superintendent.

## MILWAUKEE SANITARIUM, WAUWATOSA.

Richard Dewey, M. D., Physician-in-Charge.

John B. Edwards, M. D., Mauston.

William F. Becker, M. D., Milwaukee.

W. B. Lyman, M. D., Eau Claire.

Byron M. Caples, M. D., Waukesha Springs.

Uranus O. B. Wingate, M. D., Milwaukee.

Wm. G. Stearns, M. D., Lake Geneva.

## WYOMING—STATE HOSPITAL FOR THE INSANE, EVANSTON.

## PUERTO RICO—INSANE ASYLUM, SAN JUAN.

F. R. Goenaga, M. D., Superintendent.

BRITISH AMERICA.

ONTARIO—ASYLUM FOR THE INSANE, TORONTO.

Daniel Clark, M. D., Superintendent.

ASYLUM FOR THE INSANE, LONDON.

G. A. MacCallum, M. D., Superintendent.

H. E. Buchan, M. D., Assistant Superintendent.

ROCKWOOD HOSPITAL FOR THE INSANE, KINGSTON.

Charles K. Clarke, M. D., Superintendent.

ASYLUM FOR THE INSANE, HAMILTON.

James Russell, M. D., Superintendent.

ASYLUM FOR THE INSANE, MIMICO, TORONTO.

Nelson H. Beemer, M. D., Superintendent.

ASYLUM FOR THE INSANE, BROCKVILLE.

John B. Murphy, M. D., Superintendent.

ASYLUM FOR THE INSANE, COBOURG.

Eugene C. McNicholl, M. D., Superintendent.

HOMEWOOD RETREAT, GUELPH.

Alfred T. Hobbs, M. D., Superintendent.

QUEBEC—PROTESTANT HOSPITAL FOR THE INSANE, MONTREAL.

T. J. W. Burgess, M. D., Superintendent.

James V. Anglin, M. D., Assistant Superintendent.

Andrew Macphail, M. D., Pathologist.

ASILE DES ALIÉNÉS SAINT JEAN DE DIEU, LONGUE POINTE.

George Villeneuve, M. D. Superintendent.

E. Philippe Chagnon, M. D., Montreal.

QUEBEC ASYLUM FOR THE INSANE, QUEBEC.

NOVA SCOTIA—NOVA SCOTIA HOSPITAL FOR THE INSANE, HALIFAX.

W. H. Hattie, M. D., Superintendent.

Geo. L. Sinclair, M. D., Halifax.

NEW BRUNSWICK—PROVINCIAL ASYLUM, ST. JOHN.

George A. Hetherington, M. D., Superintendent.

PRINCE EDWARD ISLAND—HOSPITAL FOR INSANE, CHARLOTTETOWN.

V. L. Goodwill, M. D., Medical Superintendent.

NEWFOUNDLAND—ASYLUM FOR THE INSANE, ST JOHN'S.



## HONORARY MEMBERS.

- T. S. Clouston, M. D., F. R. C. P., F. R. S. E., Edinburgh Scotland.  
David Yellowlees, M. D., F. F. P. S., LL. D., Glasgow, Scotland.  
A. Motet, M. D., Paris, France.  
A. Tamburini, M. D., Reggio-Emilia, Italy.  
Stephen Smith, M. D., New York, N. Y.  
G. Stanley Hall, Ph. D., LL. D., Worcester Mass.  
Charles F. Folsom, M. D., Boston, Mass.  
James Rutherford, M. D., F. R. C. P., F. F. P. S., Dumfries, Scotland.  
S. Weir Mitchell, M. D., Philadelphia, Pa.  
Victor Parant, M. D., Toulouse, France.  
Jules Morel, M. D., Mons, Belgium.  
Emmanuel Régis, M. D., Bordeaux, France.  
Réné Semelaigne, M. D., Paris, France.  
James M. Buckley, D. D., LL. D., Morristown, N. J.  
Henry Hun, M. D., Albany, N. Y.  
James Beveridge Spence, M. D., R. U. I. M. Ch., Burntwood, England.  
Antoine Ritti, M. D., Charenton, près Paris, France.  
Alexander R. Urquhart, M. D., F. R. C. P. E., Perth, Scotland.  
William Pryor Letchworth, LL. D., Glen Iris, Portage, N. Y.  
Edouard Toulouse, M. D., Villejuif, France.  
Wesley Mills, A. M. M. D., Montreal, Que.

# AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

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## CONSTITUTION.

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### ARTICLE I.

This organization shall be known as the AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION, this name being adopted in 1892 by "The Association of Medical Superintendents of American Institutions for the Insane," founded in 1844.

### ARTICLE II.

The object of this Association shall be the study of all subjects pertaining to mental disease, including the care, treatment, and promotion of the best interests of the insane.

### ARTICLE III.

There shall be four classes of members: (1) Active members, who shall be physicians, resident in the United States and British America, especially interested in the treatment of insanity; (2) Associate members; (3) Honorary members; and (4) Corresponding members.

### ARTICLE IV.

The officers of the Association shall consist of a President, Vice-President, Secretary—who shall also be the Treasurer—two Auditors, and twelve other members of the Association to be called Councilors; all of these officers together shall constitute a body which shall be known as the Council.

NOTE.—The Association of Medical Superintendents of American Institutions for the Insane was founded in 1844 by the original thirteen members. In 1891, when its membership had increased to more than two hundred, it was proposed, at the annual meeting of that year in Washington, to form a better organization of the Association—its work having previously been done under the somewhat unstable rules of custom and a few resolutions scattered through its records. The proposition was agreed to, and at the annual meeting in Washington, in 1892, there was unanimously adopted the following Constitution and By-Laws, with the change of name to the AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

## ARTICLE V.

The Active members of the Association shall include all past and present medical superintendents named in the official list published for 1892 of members of "The Association of Medical Superintendents of American Institutions for the Insane;" the Honorary members shall include those so designated in that list; the Associate members shall include all the assistant physicians named in the same list; it being provided that said list shall be corrected by the Council, as may be necessary to carry out the intention of the Constitution as to the continuance of existing membership.

Every candidate for admission to the Association hereafter as an Active member shall be proposed to the Council, in writing, in an application addressed to the President, at any annual meeting preceding the one at which the election is held. Honorary, Associate, or Corresponding members shall be proposed to the Council, in writing, in an application addressed to the President, at least two months prior to the meeting of the Association. Every application of whatever class must include a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for Active or Associate membership, the application shall be signed by three Active members of the Association; and by six Active members for the proposal of an Honorary or Corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present. Physicians who, by their professional work or published writings, have shown a special interest in the care and welfare of the insane, are eligible to Active membership. The only persons eligible for Associate membership are regularly appointed assistant physicians of institutions for the insane that are regarded to be properly such by the Council; and they are eligible for such membership only during the time they are holding such appointments. After

holding such an appointment three years, an Associate member may become an Active member by making application, in writing, to the Council, and upon its approval, being elected in the manner heretofore prescribed.

#### ARTICLE VI.

Physicians and others who have distinguished themselves by their attainments in branches of science connected with insanity, or who have rendered signal service in philanthropic efforts to promote the interests of the insane, shall be eligible for Honorary membership.

Physicians not residents in the United States and British America, who are actively engaged in the treatment of insanity, may be elected Corresponding members.

Active members only shall be entitled to a vote at any meeting, or be eligible to any office. Honorary and Corresponding members shall be exempt from all payments to the Association.

#### ARTICLE VII.

Any member of the Association may withdraw from it on signifying his desire to do so in writing to the Secretary: *Provided*, That he shall have paid all his dues to the Association. Any member who shall fail for three successive years to pay his dues after special notice by the Treasurer shall be regarded as having resigned his membership, unless such dues shall have been remitted by the Council for good and sufficient reasons.

Any member who shall be declared unfit for membership by a two-thirds vote of the members of the Council present at an annual meeting of that body shall have his name presented by it for the action of the Association, from which he shall be dismissed if it be so voted by two-thirds of the members present at its annual meeting.

#### ARTICLE VIII.

The Officers and Councilors shall be elected at each annual meeting. They shall be nominated to the Association on the second day of the annual meeting in the order of business of the first session of that day, by a committee appointed for that purpose by the President; and the election shall take place immediately. The election shall be made as the meeting may deter-



mine, and the person who shall have received the highest number of votes shall be declared elected to the office for which he has been nominated.

The President, Vice-President, the Secretary and Treasurer, and Auditors shall hold office for one year or until the beginning of the term for which their successors are elected. The Secretary and Treasurer and one Auditor are eligible for re-election. At the first election of Councilors, four members shall be elected for one year, four for two years, and four for three years; and thereafter four members shall be elected each year to hold office three years, or until their successors are elected. The President, Vice-President, one Auditor, and the four retiring Councilors are ineligible for re-election to their respective offices for one year immediately following their retirement. All the Officers and Councilors shall enter upon their duties immediately after their election, excepting the President and Vice-President. When any vacancies occur in any of the offices of the Association, they shall be filled by the Council until the next annual meeting.

A quorum of the Council shall be formed by six members; and of the Association by twenty Active members.

#### ARTICLE IX.

The President and Vice-President for the year shall enter on their duties at the close of the business of the annual meeting at which they are elected. The President shall prepare an inaugural address to be delivered at the opening session of the meeting. He shall preside at all the annual or special meetings of the Association or Council, or in his absence at any time, the Vice-President shall act in his place.

The Secretary and Treasurer shall keep the records of the Association and perform all the duties usually pertaining to that office, and such other duties as may be prescribed for him by the Council; and under the same authority he shall receive and disburse and duly account for all sums of money belonging to the Association. He shall keep accurate accounts and vouchers of all his receipts and payments on behalf of the Association, and of all invested funds, with the income and disposition thereof, that may be placed in his keeping, and shall submit these accounts, with a financial report for the preceding year, to the



Council at its annual meeting. Each annual statement shall be examined by the Auditors, who shall prepare and present at each annual meeting of the Association a report showing its financial condition. The Council shall have charge of any funds in the possession of the Association, and which shall be invested under its direction and control. The Council shall keep a careful record of its proceedings, and make an annual report to the Association of matters of general interest. The Council shall also print annually the proceedings of the meetings of the Association and the reports of the Treasurer and Auditors.

The Council is empowered to manage all the affairs of the Association, subject to the Constitution and By-Laws; to appoint committees from the membership of the Association, and spend money out of its surplus funds for special scientific investigations in matters pertaining to the objects of the Association, to publish reports of such scientific investigations; to apply the income of special funds, at its discretion, to the purposes for which they were intended. The Council may also engage in the regular publication of reports, papers, transactions and other matters, in annual volume, or in a journal, in such manner and at such times as the Council may determine, with the approval of the Association.

#### ARTICLE X.

Amendments to the Constitution and By-Laws shall be taken up for consideration at the first session of the second day of any annual meeting, and may be made by a two-thirds vote of all the members present: *Provided*, That notice of such proposed amendments be given in writing at the annual meeting next preceding. It shall be the duty of the Secretary to send to all the members a copy of any proposed amendment at least three months previous to the meeting when the action is to be taken.

*B Y - L A W S .*

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ARTICLE I.

The meetings of the Association shall be held annually. The time and place of each meeting shall be named by the Council, and reported to the Association for its action at the preceding meeting. Each annual meeting shall be called by printed announcements sent to each member at least three months previous to the meeting.

The Council shall hold an annual meeting concurrent with the annual meeting of the Association; and the Council shall hold as many sessions and at such times as the business of the Association may require.

Special meetings of the Council may be called by the order of the Council. The President shall have authority at any time, at his own discretion, to instruct the Secretary to call a special meeting of the Council; and he shall be required to do so upon a request signed by six members of the Council. Such special meetings shall be called by giving at least four weeks' written notice.

## ARTICLE II.

Each and every Active and Associate member shall pay an annual tax to the Treasurer, the amount to be fixed annually by the Council, not to exceed five dollars for an Active member, or two dollars for an Associate member.

## ARTICLE III.

The order of business of each annual meeting of the Association shall be determined by the Council, and shall be printed for the use of the Association at its meeting. The Council shall also make all arrangements for the meetings of the Association, appointing such auxiliary committees from its own body, or from other members of the Association, and making such other provision as shall be requisite, at its discretion.

## NOTE.

The accompanying volume, containing the proceedings, papers and discussions of the American Medico-Psychological Association at its Fifty-ninth Annual Meeting, is printed by the Council with the approval of the Association.

*C. B. BURR,*  
*Secretary.*

FLINT, MICH., *October 1, 1908.*



# AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

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## PROCEEDINGS OF THE FIFTY-NINTH ANNUAL MEETING.

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TUESDAY, MAY 12, 1903.

### FIRST SESSION.

The Association convened at 10 o'clock a. m., in the banquet room of The Shoreham, Washington, D. C., and was called to order by the President, Dr. G. Alder Blumer, of Providence, Rhode Island.

The President of the Association introduced the Honorable H. B. F. MacFarland, President of the Board of Commissioners of the District of Columbia, who welcomed the Association to the District of Columbia in the following words:

Mr. President, Ladies and Gentlemen: I have the honor of welcoming you on behalf of the executive government of the District of Columbia, the Board of Commissioners, and in its behalf I offer you a most hearty welcome here. We are very glad that you have come again—for I understand that this is not by any means your first visit to Washington, and we are hopeful that you will continue to come. We think, indeed, that it would be wise of you to make this your annual meeting place. Certainly it must be delightful to come here away from the clash and roar and smoke of the commercial city. For even you, after your studies of nerves, must be delighted to come to a place where we have no nerves; where the "wicked cease from troubling and the weary are at rest." (Laughter.) And, too, it must be particularly delightful for you to see Washington just at this time of the year, for this is our most beautiful month and corresponds with Lowell's "Month of June." At this time, when the Capital puts on its fairest dress and its fairest smile, we are particularly glad to have visitors come here; and then, as I said, I think you will find rest in beauty, rest in the calm of the Capital.

I was reading in the *Washington Post* this morning that our friend, Dr. William T. Harris, in an address before the Academy of Medicine yesterday, said that he used to have very worn-down nerves—that of course was when he lived in another city—and that he was accustomed to betake him-



self, to cure his insomnia, to the Aristotle Society. He explained afterwards that he took a glass of beer at each of those meetings, and that that soothed him into a calm. Now, in Washington, it is not necessary to attend the meetings of the Aristotle Society, or to take even a glass of beer in order to have calm and to sleep well. This is the place where you may have all the rest that you need.

I do not need to say to you I am sure that we have the greatest sights and the most beautiful city, perhaps, in the United States. You will, of course, be especially interested in the very fine hospital for the insane—St. Elizabeth's—which is just across the eastern branch of the Potomac river, on a hill looking down upon the Capitol. It is here that our friend Doctor Richardson has worked so successfully that we feel sure he will accomplish even greater things. We are proud of what is being done there. St. Elizabeth's does not belong to the District of Columbia, for we pay only for the patients we send there. It is a United States institution, so I can say with perfect freedom that we are proud of the work that is being done there.

We are all deeply interested in the work you gentlemen are engaged in, for it is a subject that must have a special interest for every human being, and we who are on the outside note with the greatest interest and satisfaction every advance that is made. We realize that you have made in the treatment of your subject at least as much progress as has been made in other departments of scientific work.

I read last night the words that Shakespeare wrote three hundred years ago, when he made the old Scotch tyrant inquire:

"Canst thou not minister to a mind diseased,  
Pluck from the memory a rooted sorrow,  
Raze out the written troubles of the brain,  
And with some sweet oblivious antidote  
Cleanse the stuffed bosom of that perilous stuff  
Which weighs upon the heart?"

And the physician has to say:

"Therein the patient  
Must minister to himself."

Now, while there is profound philosophic truth in that, we have now come to know that the physician can do great things even for that patient with the "mind diseased," and therein lies great hope and satisfaction for all of us, even those of us who know least about the details of what has been done.

I congratulate you all upon what has been done by this Association, and I welcome you most heartily to the National Capital. (Applause.)

The President:

You will notice, ladies and gentlemen, that whenever the Association meets, those who are in charge of the arrangements are never satisfied with a welcome of the ordinary kind. We are to be welcomed a second time by General George M. Sternberg, and I will now call upon the General for an address.

### General Sternberg:

Mr. President, Ladies and Gentlemen: After listening to the welcoming address of our Commissioner you will hardly care to have me occupy much time, especially in view of the very interesting programme which you have. I dare say you are all eager to get to work on that programme, but I may say that in behalf of the medical profession of this city I am very glad indeed to welcome you here. We have, I think, a profession fully up to the standard of other large cities.

Just one word with reference to Washington. You were here some two or three years ago, and many of you know what a beautiful city we have. For this we owe something to the Honorable Commissioner, who, during the past three years, has been at the head of the city government, and who has done everything in his power to promote the interests of the citizens of this city. One of the latest of his achievements has been the securing of regulations against expectoration upon the sidewalks and in public vehicles. (Applause.) There seems to be considerable conservative opposition to this measure, which certainly would not have been carried but for him. In everything he has taken the most liberal view in regard to the sanitary interests of the city. When I go back to Washington as I saw it in 1861, and recall the straggling town with its unpaved and muddy streets, and compare it with the Washington of to-day, I realize what great progress we are making in all directions. Do you realize the progress that has been made in medical science during that time? But to enter upon that subject would take the entire time you have at your disposal. (Applause.)

### The President:

It would seem, ladies and gentlemen, that everything has been said that could be said to emphasize our welcome to Washington, but I am sure you will find that there will still remain something for General Wyman to say in bidding us welcome.

### Gen. Walter Wyman:

Mr. President, Ladies and Gentlemen: I have not prepared any formal address of welcome, and I think you will excuse me for not doing so when I tell you that I have but just returned from attending the sessions of the American Medical Association in New Orleans, and those of you who remain here for this week will, I am sure, appreciate the condition of one who has just returned from a week at a medical convention. (Laughter.) I have just come back and have not yet had time even to unpack my trunk, but came around here just as I am to bid you welcome on behalf of the Board of Visitors of the Government Hospital for the Insane at St. Elizabeth's. We are very proud of that institution, and, I may add, incidentally, of its Superintendent, Doctor Richardson. (Applause.)

Some two years ago Congress, moved by the representations that were made to it by the then new Superintendent, appropriated very nearly one million dollars for the purpose of doubling the capacity of the institution. We have there now some 2,300 persons, and the buildings provided for by Congress are in course of erection. When they are completed there will be

at least forty-eight buildings connected with the Government Hospital for the Insane. We shall be very glad to see all the members of the Association over there, either by personal visits or together.

I am informed by Dr. Richardson that on Friday afternoon, at half past one, there will be a lunch served to this Association, and I trust you will all take pains to be present, as I am sure it will be worth your while. I trust that you will note the character of the new buildings that have been devised, and particularly their arrangements and the organization of the hospital.

It seems to me that in dealing with such a large institution as this executive ability of the rarest kind is required, not only in its medical administration, but in the apportionment of the work and the facilities afforded. Of course there is first a general division between white and colored patients, then between male and female, then between those who are disturbed and those who are not. It was a marvel to me with what skill these divisions have been properly arranged for in the construction and laying out of these buildings, which were provided for by Congress two years ago.

So that, gentlemen, we hope to see you over there, and so far as I may represent the medical service, certainly as a member of the Board of Visitors, I tender you a most hearty welcome. (Applause.)

### The President:

I am sure, ladies and gentlemen, that you will sanction my speaking when I say that we are all very grateful to these gentlemen for their treble welcome. We are all very grateful, I am sure, for the assertion that we shall find here a place to rest, for we all need rest in these strenuous times. I could not help thinking, as Commissioner MacFarland spoke, of a statement made not long ago by a brilliant newspaper man that "The only chance for rest and quiet in this world nowadays was in the time intervening between a strenuous day of death and a strenuous day of judgment." (Laughter.) It appears, however, that there is an intervening place, and that we can find here in Washington the rest we need so much. I will not further occupy the time of the Association except to add that we are all, I am sure, extremely grateful for the very warm welcome which has been accorded us.

I now call for the report of the Committee of Arrangements.

### REPORT OF COMMITTEE OF ARRANGEMENTS.

#### Dr. A. B. Richardson:

Mr. President, Ladies and Gentlemen: I regret that we have not much to report with reference to arrangements for our section. You all know that we meet here as a branch of the affiliated medical societies, and that a very considerable portion of the time of this Congress will be occupied by the general entertainments. There will be to-night a reception to the President of the Congress, Doctor Keen, at the Arlington Hotel, to which you are all invited, provided that you have associated yourself with the General Congress by contributing five dollars—I believe that is the

amount—to the expenses of the Congress. As members of this Association you are of course entitled to general membership in the Congress, but my understanding is that to bear the general expenses of the Congress this five-dollar assessment is made, and that admission to this reception to the President of the Congress tonight is extended only to those who are affiliated with the General Congress in this manner.

There will also be a general smoker at the New Willard Hotel on Thursday evening. Outside of this, you will note from the programme, that the time is tolerably well occupied, for each individual section seems to have announced that it will hold luncheons or dinners and the like on Tuesday, Wednesday or Thursday. So we, at the Government Hospital for the Insane, thought it would be to the advantage of the Association if we deferred our special lunch until Friday.

So I hope all of you will be able to remain until the close of the session, and that you will all take time enough to come to the Hospital and at least enjoy the clear atmosphere that we have at that high elevation. There, as here, this is the most lovely part of the year, and I am sure you will all enjoy an afternoon at the institution. Our purpose is to serve an informal luncheon at 1:30, or thereabouts, and then to devote as much of the afternoon as you desire to an inspection of the Hospital.

As General Wyman said, we are making vast improvements there and spending about a million and a half dollars, and we shall be very glad to show you the additions that are being made and the purpose for which each building is intended. Perhaps you may be able to gather a few ideas from it, as the constructive work is particularly interesting and there is always something new about it. If any of you care to make a special inspection we shall have officers in charge there all day, and they will be very glad indeed to show you about and let you see any special features you may be interested in.

I do not know that there is anything further to be said. We do not deem it wise to arrange for a set banquet, for we thought at this season of the year a little outing of this kind would meet your approval in preference to an evening spent at the banquet table.

If there is any information about the city or the points you desire to visit needed, I shall be very glad to give it if I am able.

The Secretary then made some announcements and stated that a letter of regret had been received by him from Doctor Chapin; also a letter from Doctor Toulouse, expressing to the Association his thanks for the honor the Association conferred upon him last year in electing him as an honorary member.

#### REPORT OF THE COUNCIL.

The Secretary reported that the Council had recommended the following for membership in the Association:

*For Honorary Membership.*—Wesley Mills, M. A., M. D., Montreal, Que.



*For Active Membership.*—Jas. B. Ayer, M. D., Boston, Mass.; Martin W. Barr, M. D., Elwyn, Pa.; I. W. Blackburn, M. D., Washington, D. C.; W. P. Crumbacker, M. D., Independence, Ia.; Chas. G. Dewey, M. D., Boston, Mass.; Robt. E. Doran, M. D., Sonyea, N. Y.; Augustus A. Eshner, M. D., Philadelphia, Pa.; Geo. W. Foster, M. D., Bangor, Me.; F. R. Goenaga, M. D., San Juan, Puerto Rico; V. L. Goodwill, M. D., Charlottetown, P. E. I.; Isham G. Harris, M. D., Poughkeepsie, N. Y.; Alfred T. Hobbs, M. D., Guelph, Ont.; Joseph B. Howland, M. D., Gardner, Mass.; Arthur C. Jelly, M. D., Boston, Mass.; Walter H. Kidder, M. D., Oswego, N. Y.; F. W. Langdon, M. D., Cincinnati, O.; G. A. MacCallum, M. D., London, Ont.; Emma W. Mooers, M. D., Waverley, Mass.; Frank P. Norbury, M. D., Jacksonville, Ill.; F. Savary Pearce, M. D., Philadelphia, Pa.; Arthur Sweeney, M. D., St. Paul, Minn.; Theodore I. Townsend, M. D., Utica, N. Y.; Sidney D. Wilgus, M. D., Brooklyn, N. Y.

*For Associate Membership.*—Charles Lewis Allen, M. D., Trenton, N. J.; Clayton G. Andrews, M. D., Waterbury, Vt.; Geo. G. Armstrong, M. D., Buffalo, N. Y.; Chester Lee Carlisle, M. D., Ward's Island, N. Y.; Isador H. Coriat, M. D., Worcester, Mass.; Harry Andrews Cotton, M. D., Worcester, Mass.; Cornelius DeWeese, M. D., Washington, D. C.; Frank L. Grosvenor, M. D., Ward's Island, N. Y.; Seymour DeWitt Ludlum, M. D., Frankford, Pa.; William McDonald, M. D., Providence, R. I.; William H. Montgomery, M. D., Sonyea, N. Y.; Wm. T. Shanahan, M. D., Sonyea, N. Y.; Edward A. Sharp, M. D., Central Valley, N. Y.; Alton S. Smiley, M. D., Ward's Island, N. Y.; Henry M. Swift, M. D., Hathorne, Mass.; Arno C. Voigt, M. D., Retreat, Pa.; Chas. S. Walker, M. D., Concord, N. H.; Franklin S. Wilcox, M. D., West Newton, Mass.

The Council also reported that it recommended that dues for active members for the coming year be placed at \$5.00, and for associate members at \$2.00.

### The President:

The names reported by the Council will be placed before the Association to be balloted upon at a subsequent meeting, as provided for by the Constitution.

On motion of Doctor Hurd the report of the Council as to prospective members was accepted, and as to dues accepted and adopted.



The following report was read by the Treasurer:

*C. B. Burr, Treasurer, in Account with the American Medico-Psychological Association.*

## DR.

|                                               |            |
|-----------------------------------------------|------------|
| May 1, 1902—To Balance .....                  | \$1,149 74 |
| May 1, 1903—To Dues from Active Members ..... | 1,300 10   |
| Dues from Associate Members .....             | 160 15     |
| Interest .....                                | 33 83      |
| Sale of Transactions .....                    | 16 25      |
| Sale of Gummed Lists .....                    | 5 00       |
| Sale of Blackburn's Autopsies .....           | 1 25       |
|                                               | <hr/>      |
|                                               | \$2,666 32 |

## CR.

|                                                                           |            |
|---------------------------------------------------------------------------|------------|
| May 1, 1903—Printing Transactions, lists of members,<br>reprints .....    | \$629 98   |
| Mailing cases .....                                                       | 18 00      |
| Express on reprints and Transactions...                                   | 46 39      |
| Stationery, pens, miscellaneous printing,<br>programs, ballots, etc ..... | 104 10     |
| Stenographer and clerical hire .....                                      | 180 52     |
| Secretary's expenses at Montreal .....                                    | 2 25       |
| Appropriation, <i>Journal of Insanity</i> ....                            | 200 00     |
| Postage .....                                                             | 130 00     |
| Telegraphing .....                                                        | 4 94       |
| Cuts for papers of Drs. Dent, Wright and<br>Haviland .....                | 34 50      |
| Balance to new account:                                                   |            |
| Genesee County Savings Bank..                                             | \$932 21   |
| First National Bank, savings<br>account .....                             | 323 50     |
| First National Bank, commercial<br>account .....                          | 59 93      |
|                                                                           | <hr/>      |
|                                                                           | 1,815 64   |
|                                                                           | <hr/>      |
|                                                                           | \$2,666 32 |

On motion of Dr. Richardson the report of the Treasurer was referred to the Auditors.

The following report from the editors of *The American Journal of Insanity* was read by Dr. Hurd, Editor-in-Chief:

Baltimore, May 9, 1903.

*To the American Medico-Psychological Association:*

Gentlemen: The past year in the history of *The American Journal of Insanity* has been a prosperous one. The cost of publishing the *Journal* has been \$2,641.46, not including the appropriation of \$200 received from the Treasurer of the Association for proof-reading, editing manuscripts and

the like. The receipts from all sources have been \$2,861.01. The balance of cash on hand is \$219.55. There is due and collectable on open accounts, mainly for advertising, \$307.91, and for subscriptions about \$150.

The contents of the *Journal* for the past year have made a volume of nearly 750 pages, and the material has been varied and much of it of a high character. In January last, with a view to improving the character of the *Journal*, a consultation of the editors was held in New York. As the result of this consultation it was decided to ask Dr. Adolf Meyer, the Director of the New York Pathological Institute, to take charge of the Department of Pathology, and to request Dr. Richard Dewey, of the Milwaukee Sanitarium to assume charge of a Department of Therapeutic Notes. Both of these gentlemen have consented to assume the duties thus assigned them, and the Editorial Board confidently expects that the *Journal* will be strengthened in these two important departments.

In behalf of the Editorial Board, I desire to express my thanks to the members of the Association who have contributed so much during the past year to the excellence of the *Journal*. The *Journal* is growing in subscription list and in influence, and is an increasing power in advancing the specialty of insanity.

Vouchers for all expenditures are presented, and I would ask that they be submitted to the Auditors for examination and report at this meeting.

Respectfully submitted,

HENRY M. HURD,

*Managing Editor,*

In behalf of the Editorial Committee.

### The President:

Although I am myself, ladies and gentlemen, a co-editor of *The American Journal of Insanity*, I think, in view of the fact that nearly all of the work is done by Doctor Hurd, there will be no immodesty on my part if I congratulate the Association upon the excellence of the report which has just been made. I do not suppose that any of you have the slightest conception of the amount of labor and detail which Doctor Hurd puts into *The American Journal of Insanity*. Frequently, when one comes to see him at night he is poring over the corrections and mistakes in proof-sheets, doing a hundred and one things that one would like to spare him. I mention this that you may realize, as I do, how great is our obligation to Doctor Hurd for his willingness to continue in this great work. What is the pleasure of the Association with reference to the report of the editors of *The American Journal of Insanity*?

### The Secretary:

I move that it be accepted and referred to the Auditors.

The motion prevailed.

### The President:

The next order of business is the appointment of a Nominating Committee. I announce as such committee, Dr. Arthur F. Kilbourne, of Minnesota, Dr. Michael Campbell, of Tennessee, and Dr. George A. Smith, of New York. There will be a recess for the registration of members.

The following members were present during the whole or a portion of the meeting:

- Adams, Geo. S., M. D., Medical Superintendent Westborough Insane Hospital, Westborough, Mass.
- Allison, Henry E., M. D., Medical Superintendent Matteawan State Hospital, Fishkill-on-Hudson, N. Y.
- Andrews, Clayton G., M. D., First Assistant Physician Vermont State Hospital, Waterbury, Vt. (*Associate.*)
- Ayer, Jas. B., M. D., Member Massachusetts State Board of Insanity, 518 Beacon St., Boston, Mass.
- Baker, Jane Rogers, M. D., Superintendent Chester County Hospital for Insane, Embreeville, Pa.
- Bancroft, Chas. P., M. D., Medical Superintendent New Hampshire State Hospital, Concord, N. H.
- Barrett, Albert M., M. D., Pathologist Danvers Insane Hospital, Hathorne Mass. (*Associate.*)
- Berkley, Henry J., M. D., 1305 Park Ave., Baltimore, Md.
- Beutler, W. F., M. D., Medical Superintendent Asylum for the Chronic Insane, Wauwatosa, Wis.
- Blackburn, I. W., M. D., Pathologist Government Hospital for the Insane, Washington, D. C.
- Blackford, Benj., M. D., Medical Superintendent Western State Hospital, Staunton, Va.
- Blumer, G. Alder, M. D., Medical Superintendent Butler Hospital, Providence, R. I. (*President.*)
- Brown, Sanger, M. D., Attending Physician Cook County, St. Luke's and St. Elizabeth's Hospitals, 100 State St., Chicago, Ill.
- Brown, W. Stuart, M. D., Physician-in-Charge Sanford Hall, Flushing, New York, N. Y.
- Brush, Edward N., M. D., Physician-in-Chief and Superintendent Sheppard and Enoch Pratt Hospital, Towson, Md.
- Bryant, Lewis L., M. D., City Physician, Cambridge, Mass.
- Buchanan, J. M., M. D., Medical Superintendent East Mississippi Insane Asylum, Meridian, Miss.
- Burgess, T. J. W., M. D., Medical Superintendent Protestant Hospital for the Insane, Montreal, Que.
- Burr, C. B., M. D., Medical Director Oak Grove Hospital, Flint, Michigan. (*Secretary and Treasurer.*)
- Busey, A. P., M. D., Superintendent Colorado State Insane Asylum, Pueblo, Col.
- Campbell, Michael, M. D., Medical Superintendent Eastern Hospital for the Insane, Knoxville, Tenn.
- Clark, Joseph Clement, M. D., Superintendent Springfield State Hospital, Sykesville, Md.
- Clarke, Chas. K., M. D., Medical Superintendent Rockwood Hospital, Kingston, Ont.

- Cowles, Edward, M. D., Medical Superintendent McLean Hospital, Waverley, Mass.
- Crumbacker, W. P., M. D., Medical Superintendent Hospital for the Insane, Independence, Ia.
- Dent, E. C., M. D., Superintendent Manhattan State Hospital West, Ward's Island, New York, N. Y.
- Dewey, Richard, M. D., Physician-in-Charge Milwaukee Sanitarium, Wauwatosa, Wis., and 34 Washington St., Chicago, Ill.
- Dewing, Oliver M., M. D., Medical Superintendent Long Island State Hospital, King's Park, N. Y.
- Dill, D. M., M. D., Superintendent Essex County Hospital for the Insane, South Orange Ave., Newark, N. J.
- Dold, William E., M. D., Physician-in-Charge River Crest Sanitarium, Astoria, Long Island, N. Y.
- Doran, Robert E., M. D., Assistant Physician Craig Colony for Epileptics, Sonyea, N. Y.
- Drew, Chas. A., M. D., Medical Director Asylum for Insane Criminals, State Farm, Mass.
- Drewry, William F., M. D., Medical Superintendent Central State Hospital, Petersburg, Va.
- Dunton, Wm. Rush, Jr., M. D., Assistant Physician Sheppard and Enoch Pratt Hospital, Towson, Md.
- Durham, Albert, M. D., Assistant Physician Bloomingdale Asylum, White Plains, N. Y. (*Associate.*)
- Elliott, Robert M., M. D., Medical Superintendent Long Island State Hospital, Brooklyn, N. Y.
- Evans, B. D., M. D., Medical Director New Jersey State Hospital, Morris Plains, N. J.
- Eyman, H. C., M. D., Medical Superintendent Massillon State Hospital, Massillon, Ohio.
- Flood, Everett, M. D., Superintendent Massachusetts Hospital for Epileptics, Palmer, Mass.
- Foster, L. S., M. D., Superintendent Eastern State Hospital, Williamsburg, Va.
- Foster, George W., M. D., Medical Superintendent Second Hospital for the Insane, Bangor, Me.
- Franklin, Chas. M., M. D., Assistant Physician Sheppard and Enoch Pratt Hospital, Towson, Md.
- Gorton, Eliot, M. D., Superintendent Fair Oaks Sanatorium, 26 New England Ave., Summit, N. J.
- Gundry, Alfred T., M. D., Resident Physician The Gundry Sanitarium, Athol, Catonsville, Md.
- Gundry, Richard F., M. D., Member Board of Directors Springfield State Hospital; Superintendent The Richard Gundry Home, Catonsville, Md.
- Guth, Morris S., M. D., Superintendent and Physician in-Chief State Hospital for the Insane, Warren, Pa.
- Guthrie, L. V., M. D., Superintendent West Virginia Asylum, Huntington, W. Va.



- Hancker, W. H., M. D., Medical Superintendent Delaware State Hospital, Farnhurst, Del.
- Harrington, Arthur H., M. D., Superintendent New York Eye and Ear Infirmary, Thirteenth St. and Second Ave., New York, N. Y.
- Hattie, W. H., M. D., Medical Superintendent Nova Scotia Hospital, Halifax, N. S.
- Haviland, Clarence Floyd, M. D., Assistant Physician Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Associate.*)
- Hill, Gershom H., M. D., Equitable Building, Des Moines, Ia.
- Hobbs, Alfred T., M. D., Superintendent Homewood Retreat, Guelph Ont.
- Holley, Erving, M. D., Assistant Physician Willard State Hospital, Willard, N. Y. (*Associate.*)
- Hoch, August, M. D., Assistant Physician and Pathologist McLean Hospital, Waverley, Mass. (*Associate.*)
- Houston, John A., M. D., Medical Superintendent Northampton Insane Hospital, Northampton, Mass.
- Howard, Eugene H., M. D., Medical Superintendent Rochester State Hospital, Rochester, N. Y.
- Hurd, Arthur W., M. D., Medical Superintendent Buffalo State Hospital, Buffalo, N. Y.
- Hurd, Henry M., M. D., Superintendent Johns Hopkins Hospital, Baltimore, Md.
- Jelly, Geo. F., M. D., Chairman Massachusetts State Board of Insanity, 69 Newbury St., Boston, Mass.
- Keniston, James M., M. D., Assistant Physician Connecticut Hospital for the Insane, Middletown, Conn. (*Associate.*)
- Kilbourne, Arthur F., M. D., Medical Superintendent Rochester State Hospital, Rochester, Minn.
- Knapp, John Rudolph, M. D., Assistant Physician Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Associate.*)
- Kunst, A. H., M. D., Superintendent West Virginia Hospital for the Insane, Weston, W. Va.
- Lamb, Robert B., M. D., Medical Superintendent Dannemora State Hospital, Dannemora, N. Y.
- Lawton, Shailer, E., M. D., Medical Superintendent Brattleboro Retreat, Brattleboro, Vt.
- Logie, Benjamin Rush, M. D., Assistant Physician Government Hospital for the Insane, Washington, D. C. (*Associate.*)
- Lyon, Samuel B., M. D., Medical Superintendent Bloomingdale Asylum, White Plains, N. Y.
- Lyons, A. J., M. D., Superintendent Second Hospital for the Insane, Spencer, W. Va.
- McBride, James H., M. D., Pasadena, Cal.
- McKee, James, M. D., Superintendent State Hospital, Raleigh, N. C.
- McNicholl, Eugene C., M. D., Medical Superintendent Cobourg Asylum for the Insane, Cobourg, Ont.
- Mabon, William, M. D., Superintendent Bellevue and Allied Hospitals, New York, N. Y.



- Macdonald, Alexander E., M. D., Superintendent Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Vice-President-Elect.*)
- Macy, Wm. Austin, M. D., Medical Superintendent Willard State Hospital, Willard, N. Y.
- Manton, Walter P., M. D., Gynecologist Eastern and Northern Michigan Asylums; Consulting Gynecologist St. Joseph's Retreat, 32 Adams Ave. West, Detroit, Mich.
- Meredith, Hugh B., M. D., Medical Superintendent State Hospital for the Insane, Danville, Pa.
- Meyer, Adolf, M. D., Director Pathological Institute, Ward's Island, New York, N. Y.
- Miller, John F., M. D., Medical Superintendent State Hospital, Goldsboro, N. C.
- Mooers, Emma W., M. D., Assistant Physician McLean Hospital, Waverley, Mass.
- Murphy, P. L., M. D., Medical Superintendent State Hospital, Morganton, N.C.
- Murphy, John B., M. D., Medical Superintendent Asylum for the Insane, Brockville, Ont.
- Neff, Irwin H., M. D., Assistant Physician Eastern Michigan Asylum, Pontiac, Mich.
- Noble, Alfred I., M. D., Assistant Superintendent Worcester Insane Hospital, Worcester Mass.
- Noble, Henry S., M. D., Superintendent Connecticut Hospital for the Insane, Middletown, Conn.
- Noyes, William, M. D., Superintendent Men's Department Boston Insane Hospital, Mattapan, Mass.
- Orth, H. L., M. D., Superintendent and Physician Pennsylvania State Hospital, Harrisburg, Pa.
- Page, Chas. W., M. D., Superintendent and Physician Danvers Insane Hospital, Hathorne, Mass.
- Palmer, Harold, L., M. D., Superintendent Utica State Hospital, Utica, N. Y.
- Parsons, Ralph L., M. D., Private Hospital for Mental Diseases, Greenmont-on-Hudson, Ossining P. O., N. Y.
- Pilgrim, Charles W., M. D., Medical Superintendent Hudson River State Hospital, Poughkeepsie, N. Y.
- Pomeroy, E. H., M. D., The Moraine, Highland Park, Ill.
- Preston, R. J., M. D., Medical Superintendent Southwestern State Hospital Marion, Va.
- Punton, John, M. D., Superintendent Private Sanitarium; Professor Nervous and Mental Diseases University Medical College, Kansas City, Mo.
- Redwine, J. S., M. D., Superintendent Eastern Kentucky Asylum for the Insane, Lexington, Ky.
- Richardson, A. B., M. D., Superintendent Government Hospital for the Insane, Washington, D. C. (*President-Elect.*)
- Riggs, Charles Eugene, M. D., Professor of Nervous and Mental Diseases University of Minnesota; Chairman Lunacy Commission, 595 Dayton Ave., St. Paul, Minn.

- Robertson, Frank W., M. D., General Superintendent New York State Reformatory at Elmira, Elmira, N. Y.
- Rogers, Arthur C., M. D., Superintendent Minnesota School for the Feeble-Minded, Faribault, Minn.
- Rowe, G. H. M., M. D., Superintendent and Resident Physician City Hospital, Boston, Mass.
- Rowe, John T. W., M. D., Assistant Physician Manhattan State Hospital East, Ward's Island, New York, N. Y. (*Associate.*)
- Scribner, Ernest V., M. D., Medical Superintendent Worcester Insane Asylum, Worcester, Mass.
- Searl, Wm., M. D., Medical Superintendent Fair Oaks Villa, Cuyahoga Falls, Ohio.
- Smith, Geo. A., M. D., Medical Superintendent Manhattan State Hospital at Central Islip, Central Islip, L. I., N. Y.
- Smith, Stephen, M. D., New York, N. Y. (*Honorary.*)
- Spratling, Wm. P., M. D., Superintendent Craig Colony for Epileptics, Sonoma, N. Y.
- Tomlinson, H. A., M. D. Superintendent St. Peter State Hospital, St. Peter, Minn.
- Turner, John S., M. D., Superintendent North Texas Hospital for the Insane, Terrell, Tex.
- Villeneuve, George, M. D., Medical Superintendent Saint Jean de Dieu Hospital for the Insane, Longue Pointe, Que.
- Wade, J. Percy, M. D., Medical Superintendent Maryland Hospital for the Insane, Catonsville, Md.
- Wagner, Charles G., M. D., Medical Superintendent Binghamton State Hospital, Binghamton, N. Y.
- Wentworth, Lowell F., M. D., Deputy Executive Officer State Board of Insanity, Boston, Mass.
- White, M. J., M. D., Medical Superintendent Milwaukee Hospital for the Insane, Wauwatosa, Wis.
- Wilsey, O. J., M. D., Long Island Home, Amityville, N. Y.
- Wolfe, Mary M., M. D., Resident Physician Woman's Department Norristown State Hospital, Norristown, Pa.
- Woodbury, Chas. E., M. D., Medical Superintendent Massachusetts Hospital for Dipsomaniacs and Inebriates, Foxboro, Mass.
- Woodson, C. R., M. D., Medical Superintendent State Hospital No. 2, St. Joseph, Mo.
- Work, Hubert, M. D., Superintendent and Proprietor Woodcroft Hospital for Nervous Diseases; President Colorado State Board of Health, Pueblo, Col.

Other visitors and guests of the Association were as follows:

- Applegate, C. F., M. D., Superintendent State Hospital, Mt. Pleasant, Ia.
- Atherton, Horace H., Esq., Trustee Danvers Insane Hospital, East Saugus, Mass.

- Baker, Smith, M. D., Utica, N. Y.  
Barker, Edith H., M. D., Pathologist State Hospital, Norristown, Pa.  
Clark, L. Pierce, M. D., Consulting Neurologist Manhattan State Hospital,  
Central Islip, L. I., N. Y., 62 W. 58th St., New York City.  
Dana, Chas. L., M. D., New York City.  
Fairon, W. W., M. D., First Assistant Physician State Hospital, Goldsboro,  
N. C.  
Field, H. P., Esq., Trustee Northampton Insane Hospital, Bradford, Mass.  
Hopkinson, Samuel W., Esq., Trustee Danvers Insane Hospital, Bradford,  
Mass.  
MacFarland, Hon. H. B. F., Commissioner of the District of Columbia,  
Washington, D. C.  
Mentzer, John F., M. D., Trustee Pennsylvania State Lunatic Hospital,  
Ephrata, Pa.  
Miller, Harry W., M. D., Pathologist and Assistant Physician Taunton In-  
sane Hospital, Taunton, Mass.  
Murdoch, J. M., M. D., Superintendent State Institute for Feeble Minded of  
Pennsylvania, Polk, Pa.  
Packer, Flavius, M. D., Resident Physician in Charge Bellevue Pavilion for  
the Insane, Foot East 26th St., New York, N. Y.  
Parsons, Miss Sara E., Superintendent of Nurses Adams Nervine Asylum,  
Jamaica Plains, Mass.  
Peterson, Reuben, M. D., Professor Obstetrics and Gynecology University  
of Michigan, Ann Arbor, Mich.  
Pope, Alvin E., Esq., Superintendent Section Charities and Corrections,  
World's Fair, St. Louis, Mo.  
Satterwhite, T. P., M. D., Commissioner Central Kentucky Asylum for the  
Insane, Louisville, Ky.  
Shepherd, Arthur F., M. D., Superintendent Dayton State Hospital, Day-  
ton, O.  
Sternberg, Geo. M., Brig.-Gen. U. S. A., retired, 2144 California Ave., Wash-  
ington, D. C.  
Taylor, Chas. F., Esq., Member Board of Commissioners Central Kentucky  
Asylum for the Insane, 345 5th St., Louisville, Ky.  
Voldeng, M. N., M. D., Superintendent Cherokee State Hospital, Cherokee, Ia.  
Woodward, W. C., M. D., Health Officer for District of Columbia, Washing-  
ton, D. C.  
Wyman, Walter, Surgeon General U. S. Public Health and Marine Hospital  
Service, Washington, D. C.

The Association reconvened at 11:15 a. m.

The President then read his address, which was received with prolonged applause.

Dr. A. B. Richardson:

Ladies and Gentlemen: I am quite sure you will join with me in expressing the great satisfaction with the address of the President, to which we have just listened, and in expressing to him the appreciation which we feel for the honor he has done us in that address, and the hope that his sugges-

tions will reap a reward in a harvest of good work done. We all must appreciate with him the extent of the problems lying before us in attempting in some manner to curtail the evil of insanity.

As he has well said, it does not lie in the direction of the betterment of treatment for the insane. Indeed, I question but what we may have been adding to the problem by the results of organized charity, not only directly connected with the insane, but by charity as related to all forms of defectives. The general result is that the survival of the unfit is extended in its influence, while there has been neglect, to a great extent at least, of the proper education of the public as to the evils that flow from an unrestricted perpetuation of these defectives. They are nursed, protected, housed, brought to a procreative age, and then turned loose on the community in large numbers, and as a result we have a constantly increasing class of defectives that must go on in a geometrical ratio perpetuating their kind, particularly—as the President has shown—as they usually show a tendency to rear a proportionately larger family than the normal classes.

I am sure that the words the President has given us this morning will be fruitful, as time goes on, and that when these ideas are properly appreciated, not only by ourselves, but by the profession generally, and by the more intelligent of the public, that they will bear fruit, not only in legislation looking to the diminution of these evils, but also in the more important work of making a public sentiment that will help to curtail and get at the fountain-head from which flows this stream of distress and unhappiness.

I want to make the motion that we thank our President for the very admirable and acceptable address which he has made to us this morning.

The motion unanimously prevailed.

Dr. Richardson:

I want to say just one word more, Mr. President, and that is as to the arrangements for visiting the Government Hospital on Friday. I will take it as a kindness if all who purpose coming will leave their names with the Secretary or stenographer, between now and Thursday afternoon, so that we may know something of the number we may expect. With regard to the method of reaching the Hospital: If there is a sufficient number we can readily secure special cars that will come to the front door of this hotel, and go directly to the Hospital. That will be the most convenient way, and I will see that the necessary arrangements are made. If there are not enough, you can take the car in front of the hotel and transfer to the Anacostia car at Ninth and F streets, by the old Patent Office building. Some few have already spoken to me about visiting the Hospital. I shall be glad to be with them to-morrow, Wednesday, which is the time we shall have most leisure, and I think I can spend the afternoon with them.

Adjourned.



WEDNESDAY, MAY 13, 1903.

## FIRST SESSION.

The meeting was called to order by the President at 10 a. m. The applicants for membership favorably reported upon by the Council at yesterday's session were elected unanimously by ballot.

The President:

I now call for the report of the Nominating Committee.

Dr. A. F. Kilbourne:

The Nominating Committee reports as follows:

For President—Dr. A. B. Richardson, of Washington, D. C.

For Vice-President—Dr. A. E. Macdonald, of New York.

For Secretary and Treasurer—Dr. C. B. Burr, of Michigan.

For Councilors—Dr. Thomas J. Mitchell, of Mississippi.

Dr. Chas. W. Pilgrim, of New York.

Dr. A. P. Busey, of Colorado.

Dr. Charles G. Hill, of Maryland.

For Auditors—Dr. William Mabon, of New York.

Dr. J. M. Buchanan, of Mississippi.

The President:

What shall be done, gentlemen, with the report of this committee?

Dr. Evans:

I move that it be accepted and adopted and that the Secretary be directed to cast the ballot for the Association.

The motion prevailed, and the Secretary cast the ballot as directed.

The President:

The next report is that of the Auditors.

Dr. Buchanan thereupon read the Auditor's report as follows:

Washington, D. C., May 13, 1903:

*To the President and Members of the American Medico-Psychological Association:*

Gentlemen: Your Auditors beg to report that the books, accounts and vouchers of the Secretary and Treasurer, and editors of *The American Journal of Insanity*, have been examined and found correct.

J. M. BUCHANAN,

*Auditor.*

On motion of Doctor Evans the report was accepted and placed on file.

The President:

I now call for the reading of two reports by Dr. Brush.



The following reports were thereupon read by the Secretary:

Washington, D. C., May 12, 1903.

*To the American Medico-Psychological Association:*

Gentlemen; At the meeting of this Association in Richmond, in 1900, the undersigned was appointed a committee to bring about the affiliation of our Association with the American Congress of Physicians and Surgeons. This Congress is, as you know, a triennial session, held thus far in Washington, of various special medical societies and associations. The Congress does not interfere in any way with the government or conduct of any of the societies of which it is constituted, except that it asks and expects that for a certain part of the three days session of the Congress the component societies forego holding individual sessions, and unite as a Congress in listening to papers and discussions upon topics connected with medicine and surgery, by men selected from the members of the component societies, or by invited guests of distinction. The government and direction of the Congress is in the hands of an Executive Committee, consisting of one member from each of the component societies, and elected by those societies. This committee has the control of all the business of the Congress, and publication of its triennial volume, and the application of any society or association for affiliation with the Congress must be to this committee, and the acceptance or rejection of the application rests with it.

As soon as I could learn that the Executive Committee was about to have a meeting, I made, in writing, on behalf of our Association, a formal application for membership in the Congress, forwarding a copy of the official organ of our Association, *The American Journal of Insanity*—and through our Secretary, a copy of our last issued volume of Transactions. In this application I referred to the fact that our Association was the oldest National, and, considering its Canadian membership, International medical association. I stated that it was the only association of medical men in this country devoted to the study of insanity, and that in the years of its existence it had had an influence in shaping the public care of the insane, which could not be measured. I pointed out the value of its work, not only from a purely scientific and medical, but from a sociological standpoint, and asked that in view of these facts its application be received with favor. I am happy to say that the Association's application was received with the most flattering comments, and that the vote in its favor was unanimous. We are, therefore, now one of the component societies of a Congress composed, I think I may say without exaggeration, of the leaders of medical thought and study in this country. It has been perhaps the misfortune of psychiatry that its work has heretofore been considered as something apart from the interests and progress of general medicine. We have, therefore been accused of lagging behind in the march of medicine. This affiliation with the progressive men of our sister societies, men who are every one of them special workers in some one or more departments of scientific medicine, will bring us somewhat more fully into the view of our professional brethren, and our work—good, bad, or indifferent, will be judged by a body of educated and keen critics. We will triennially be brought to what may

be called a great clearing house of medical thought. Such contact and criticism, such exchange of views and comparison of methods as we shall here have opportunity for, can but be to our advantage. At our next annual meeting it will be incumbent upon the Association to elect a delegate and an alternate to the Executive Committee, and a delegate to the Committee of Arrangements. The present Executive Committee of the Congress holds office for another year.

At a meeting of the Executive Committee, on Monday evening, it was decided to recommend to the Congress that its next session be held in 1907, and triennially thereafter. This was done in order to have the American Congress held in a different year from the International Medical Congress.

I desire, in closing this report, to urge upon all members of our Association to register and pay the dues of the Congress. This entitles those registering to the volume of Transactions, and is something which, in view of the courteous treatment which our application for admission to the Congress received, seems incumbent upon all of us.

Respectfully submitted,

EDWARD N. BRUSH,

*Committee.*

Dr. Burr:

I move, Mr. President, that the report be accepted and adopted and that Doctor Brush be congratulated upon his efficient work in securing the affiliation of this Association with the Congress of American Physicians and Surgeons.

The motion unanimously prevailed.

Washington, D. C., May 12, 1903.

*To the American Medico-Psychological Association:*

Gentlemen: The undersigned was given by the Council of your Association credentials entitling him to represent the Association at the meeting of the Southwest German Alienists and Neurologists at Baden Baden in April last, and at the meeting of the British Medico Psychological Association in July. He attended the meetings of both these societies and conveyed to them the greetings of their American confreres. The meeting at Baden Baden was presided over by Professor Kræpelin and the papers and discussions were, as might be expected, of a high order. A striking feature of the meeting was the character of the discussions of the papers read and the freedom with which the various speakers dealt with the views of the essayist, a freedom which seemed to be taken as a matter of course, and which, even when there was most emphatic dissent from the views put forth by the essayist, left no apparent ill feeling.

At the Liverpool meeting of the British Association, Dr. Wigglesworth presided. Of the several papers read, two—one by Mr. Damar Harrison on "The Results of Surgical Interference in Insanity," with a report of cases, and the introduction of a discussion by Doctor Clouston, of Edinburgh, on "The Care of the Acute Insane in General Hospitals," were to me most in-

teresting and suggestive. Your representative was very glad of the opportunity at these meetings to make new acquaintances and renew old ones, and for this and the honor of representing you, he thanks you.

Respectfully submitted,

EDWARD N. BRUSH.

On motion of Doctor Burr the report was accepted and placed on file.

The Secretary read a letter of regret from Doctor Edwards, of Michigan, who was quite ill and much disappointed that he could not attend the meeting of the Association.

The President:

The next in order of business is the consideration of the amendment to the Constitution proposed by Dr. William Mabon.

The Secretary:

I think all members have seen this amendment. The present article is as follows:

"Every candidate for admission to the Association hereafter, in either of the three above-named classes of members, or as a Corresponding member, shall be proposed, in writing, to the Council, in an application addressed to the President, at least two months prior to the meeting of the Association, with a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for Active or Associate membership, the application shall be signed by three Active members of the Association; and by six Active members for the proposal of an Honorary or Corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting, shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present."

The amendment changes about the first half of the second paragraph of Article 5, and requires that an application shall be presented one year before the candidate is received into the Association. In this way the Council and the members can acquaint themselves fully with the candidate's qualifications and eligibility.

The amendment as proposed by Dr. William Mabon reads as follows:

"Every candidate for admission to the Association hereafter as an Active member shall be proposed to the Council, in writing, in an application addressed to the President, at any annual meeting preceding the one at which the election is held. Honorary, Associate, or Corresponding members shall be proposed to the Council, in writing, in an application addressed to the President, at least two months prior to the meeting of the Association. Every application of whatever class must include a statement of the candi-

date's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership." (Then follows rest of section.)

On motion of Dr. Henry M. Hurd the amendment was adopted.

The following papers were read:

"The Paranoid Forms of Manic-Depressive Insanity," Aug. Hoch, M. D., Waverley, Mass.; discussed by the President and Drs. Meyer, Richardson, and Paton.

"Paranoid Dementia," C. W. Page, M. D., Hathorne, Mass.; discussed by Dr. Henry M. Hurd and the President.

"Report of a Case: was he a Paranoiac?" C. A. Drew, M. D., State Farm, Mass.; discussed by the President.

"Notes on Malignant Growths in the Insane," John Rudolph Knapp, M. D., New York City.

"Blood Changes in Dementia Paralytica," A. R. Defendorf, M. D., Middletown, Conn.; read by Doctor Keniston; discussed by the President.

"Some Observations on the Insane—Blood Pressure," W. R. Dunton, Jr., M. D., Towson, Md.; discussed by Doctor Paton.  
Adjourned.

#### SECOND SESSION.

The Association was called to order by the President at 8 p. m.

Dr. L. Pierce Clark of New York, read, by invitation, a paper entitled, "Notes on the Newest Psychopathic Hospital at Kiel: with Photographs and Plans;" discussed by Doctor Cowles.

On motion of Doctor Burr a vote of thanks was extended Doctor Clark for his interesting paper.

The following papers were read:

"The Principles of Mental Pathology and the Nature of Mental Symptoms," Edward Cowles, M. D., Waverley, Mass.; discussed by the President, and Drs. C. G. Hill and Michael Campbell.

"Pathology of Acute Delirium," H. A. Tomlinson, M. D., St. Peter, Minn.

"The Toxemic Basis of Certain Brain Diseases, W. E. Dold, M. D.; discussed by Doctor Pomeroy.



THURSDAY, MAY 14, 1903.

FIRST SESSION.

The Association was called to order by the President at 10 a. m.

The Council reported favorably upon the application of Dr. Lemuel T. Hall, of Farmington, Mo., for active membership, and recommended his election. A ballot bearing his name was submitted and referred to the Association for action at a subsequent session.

The President introduced Doctor Smith in the following words:

I hope I shall not be accused of using language improperly, ladies and gentlemen, if I call upon the venerable Dr. Stephen Smith, of New York, for his paper, which stands first on this morning's programme. The word "venerable," unfortunately, in our language, conveys the suggestion of age, but I use it in this case more in the ecclesiastic sense, for no man is old who still has soft arteries in his brain. Dr. Stephen Smith's arteries are all of that kind, as you will discover ere he has finished this paper.

No one can read the title of the paper, "How Dr. Brigham Met the Challenge to Diagnose Insanity at Sight," without being carried back at least sixty years or so, which, after all, is not a short time. Doctor Brigham was the first Superintendent of the Utica State Asylum, which was opened in 1843. It may surprise you that Doctor Smith's memory goes back as far as that, but it may surprise you still more when I tell you that the last time I saw Doctor Smith his mother was still living and he was still receiving letters from her beginning "My Dear Boy." (Applause.) I think you will find he is still a boy, if not "one of the boys." (Laughter and applause.)

Doctor Smith replied as follows:

Perhaps I ought to apologize for introducing a paper in the midst of your scientific discussions that is not of very scientific interest. But, perhaps, it may prove a diversion from the consideration of those subjects that are so difficult and require such a strenuous use of your mind. The paper I have here prepared describes a little incident in the history of Doctor Brigham that I believe has never been mentioned, or, at least, has never been written upon to my knowledge. As I happened to be accidentally a witness of it, I bring it forward now as a little historical event that may prove diverting, even if it is not instructive.

The following papers were read:

"How Doctor Brigham Met the Challenge to Diagnose Insanity at Sight," Stephen Smith, M. D., New York; discussed by the President and Dr. Henry M. Hurd.

"Traumatic Insanity: Varieties and Pathology," Adolf Meyer, M. D., Ward's Island, N. Y.



"Traumatic Insanity: Symptomatology and Medical Treatment," A. B. Richardson, M. D., Washington, D. C.

Dr. Richardson prefaced his paper by the following remarks:

Mr. President, Ladies and Gentlemen: I fear that after the two exceedingly interesting papers to which we have listened, my feeble effort will be so out of proportion that I ought to make an apology for it. My description of this subject will be quite in contrast with that of Dr. Meyer. It is based simply on my work as a clinician, and of course will lack the technical character that the paper of Dr. Meyer so fully brought out. I have felt my helplessness more in attempting to write on this subject, as requested by the Secretary of the Association, than I have for a good many years. And this because I have found it so difficult to get anything reliable or instructive, or to arrive at any classification of the subject that I thought would be of value or be practicable.

At the conclusion of his paper Doctor Richardson said:

As you will see, I have limited myself in this paper almost entirely to the symptomatology. I do not understand that the medical treatment would differ in any respect from such treatment of insanity from other causes. It is only the question of operative interference which we are to discuss in the consideration of the peculiarities of treatment. I am not able to discuss intelligently when operative interference is justifiable. I should think, however, that as a general rule we should be rather cautious in advising operations in cases where we are not quite sure that the traumatism stands in a direct relation to the causation of the insanity. (Applause.)

"Surgical Experiences in Insanity of Traumatic Origin," cases collected and tabulated by C. B. Burr, M. D., Flint, Mich.

"Results of Brain Surgery in Epilepsy and Congenital Mental Defect," W. P. Spratling, M. D., Sonyea, N. Y.

The Symposium on Traumatic Insanity was discussed by Drs. Henry M. Hurd, Tomlinson, Dewey, Harrington, Evans, Keniston, and the President.

"An Epidemic of Typhoid Fever Due to Impure Ice," R. H. Hutchings, M. D., Ogdensburg, N. Y.; read by title.

"The Help Question in Asylums," Edward French, M. D., Harding, Mass.

"Psychology of Epilepsy," Everett Flood, M. D., Palmer, Mass.

Adjourned.

#### SECOND SESSION.

The Association was called to order at 3 p. m.

The following papers were read:

"The Treatment of Morphine Habit by Hyoscine," J. M. Buchanan, M. D., Meridian, Miss.; discussed by Drs. Burr, Jelly, Hill and Drew.

"The Report of a Case of Myoclonus Epilepsy," I. H. Neff, M. D., Pontiac, Mich.; discussed by Doctor Riggs.

The following papers were read by title:

"Physiological Demands in Hospital Food Supply," W. H. Kidder, M. D., Oswego, N. Y.

"Cases of Tumors of the Brain Causing Mental Symptoms," Henry C. Baldwin, M. D., Boston, Mass.

"An Important Medico-Legal Case," Henry R. Stedman, M. D., Brookline, Mass.

Dr. Henry M. Hurd:

Mr. President: I am going to offer a resolution. We all remember with great interest the resolutions offered in 1898 by Doctor Chapin, calling attention of prison officials to the necessity for a better service in all institutions for the punishment of criminals, and also of the necessity for proper provision for the care of the criminal insane.

I wish to offer as a resolution, that we reaffirm the principles set forth in the resolutions adopted in 1898, and that our Secretary be instructed to present these again to the National Prison Association, and again request that action be taken upon them.

The resolution was unanimously adopted.

The President:

Gentlemen: You will observe that the programme calls for a trilogy of papers on criminology, this afternoon, so it seems to me appropriate that we should discuss them all together. So I shall not call for discussion until Drs. Allison, Robertson and Lamb have had their say.

The following papers were read:

"Hospital Provision for the Insane Criminal," H. E. Allison, M. D., Fishkill Landing, N. Y.

"The Mind of the Criminal," R. B. Lamb, M. D., Danne-mora, N. Y.

"Recognition of the Insane in Penal Institutions a Factor in Diminishing Crime," Frank W. Robertson, M. D., Elmira, N. Y.

The above papers were discussed by Drs. Robertson, Pomerooy, Turner, Drew, Dewey and Richardson.

"Apparent Recovery in a case of Paranoia," Richard Dewey, M. D., Wauwatosa, Wis.; discussed by Drs. Burr, Franklin, Gundry, Campbell and Drew.

**The President:**

I should like to have someone make a motion to the effect that the Secretary be directed to cast a ballot for the election of Dr. L. T. Hall, of Farmington, Mo., whose election was recommended by the Council this morning.

**Dr. A. B. Richardson:**

I will make that motion, Mr. President.

The motion prevailed. and Dr. Hall was declared elected.

Adjourned.

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**FRIDAY, MAY 15, 1903.****FIRST SESSION.**

The meeting was called to order at 10 a. m.

**The Secretary:**

I have to present the report of the Council on the time and place of the next meeting. The Council has fixed upon St. Louis, Mo., as the place for the next meeting of the Association, and recommends that it be held some time in the month of May, or at the latest, June, and leaves with the Committee of Arrangements the fixing of the exact dates. It nominates the following as a Committee of Arrangements: Drs. Edward C. Runge, C. R. Woodson, J. F. Robinson, Charles H. Hughes, Charles G. Chaddock, Frank R. Fry, George C. Crandall, John Punton and John W. Smith.

**Dr. Woodson:**

I would like to move, Mr. President, that Dr. J. F. Robinson be made Chairman of the Committee of Arrangements.

The motion prevailed.

**Dr. Woodson:**

I would also like to move that Doctor Hall, of Farmington, be added to the Committee.

The motion prevailed.

**The President:**

The question now is shall this substitute report be accepted and adopted.

**Doctor Woodson:**

I move that the whole report be adopted as amended.

Which motion prevailed.

The following papers were read:

"Some Aspects of the Feelings in Mental Diseases," Dr. Robert H. Chase, Philadelphia, Pa.; read by title.

"A Case of Cerebro-Spinal Syphilis, with Especial Reference to the Intra-Spinal Course of the Third Posterior Thoracic Root," Emma W. Mooers, M. D., Waverley, Mass.; discussed by Drs. Hoch, Meyer and the President.

"Psychotherapy," Ralph L. Parsons, M. D., Ossining, N. Y.; discussed by Drs. Dewey and Meyer.

"Suggestive Therapeutics in Psychiatry," James M. Keniston, M. D., Middletown, Conn.

"The Insane in Canada," E. P. Chagnon, M. D., Montreal, Que.; read by title.

"Additional Notes Upon Tent Treatment for the Insane at the Manhattan State Hospital East," Arthur B. Wright, M. D., and C. Floyd Haviland, M. D.; read by Dr. Haviland.

The President:

While there is no time for the proper discussion of this paper by Drs. Wright and Haviland, I take upon myself to act as spokesman for the Association to thank these gentlemen for having conducted these most interesting experiments. For me, at all events, and I have no doubt you have had the same experience, the words "To your tents, O, Israel," have acquired an entirely new signification.

I shall now call upon Doctor Macdonald for some account of his stewardship.

Doctor Macdonald:

Mr. President, Ladies and Gentlemen: The time is so very short that I shall merely remark that I attended the International Congress at Madrid, a fortnight since. I was most cordially received, whatever truth there may be in the complaints of the other American delegates, and I can convey to you the assurance of the kindly feelings and esteem of those who met there. It might not be out of place for me to acknowledge my gratitude to you for the honor which was done me in my absence. (Applause.)

Memorial notices were then read by title, as follows:

Eugene G. Carpenter, M. D., by H. C. Eyman, M. D.

P. O. Hooper, M. D.

F. C. Winslow, M. D., by Richard Dewey, M. D.

A. Vallée, M. D., by Geo. Villeneuve, M. D.

Dr. A. B. Richardson:

I would like to move that Dr. William M. Edwards be elected a delegate to the British Medico-Psychological Association for the coming year.

The motion prevailed.

Doctor Dewey:

I would offer a resolution which is as follows:

*Resolved*, That it is a pleasure to record at this closing session of our meeting in Washington the warm appreciation with which we recognize the kindness and courtesy we have enjoyed at the hands of our hosts and hostesses. The untiring and efficient labors of Dr. A. B. Richardson in attending to arrangements for our comfort and convenience and also in entertaining the Association at the Government Hospital, and thus affording an opportu-

nity to inspect the admirable and complete construction work there going forward, deserve a sincere word of thanks. Mrs. Richardson's courtesy in taking the ladies for a delightful drive about Washington is greatly appreciated by them and by us. We have found The Shoreham a pleasant and comfortable place for our meeting.

The resolution was unanimously adopted.

The President:

I will now appoint Drs. Dewey and Woodson to escort the President-Elect to the chair.

Dr. A. B. Richardson (in the chair):

Fellow-members, I can only say that I appreciate fully this expression of your confidence and hope that I shall be able to give my fullest efforts to satisfactorily execute your commands. I want to say in this connection, with reference to our visit to the hospital this afternoon, that I hope that all who can possibly do so will come. We are anxious to have a full representation and, as you know, a good many of the members of the Association have left the city, so that those who are still here will help us out in presenting a fair contingent of our Association at the hospital, as I have invited a number of the medical men of the city to meet you there. We can leave promptly at 12:30 and can return at any time you desire, although the special car will leave at four o'clock.

What is the pleasure of the Association?

Doctor Burr:

I would like to move a vote of thanks to our retiring President for his very efficient and masterly conduct of the Association.

Doctor Hill:

I take great pleasure in seconding that motion and suggest that a rising vote be taken.

Dr. A. B. Richardson (in the chair):

It gives me great pleasure to put this motion to the Association to show our appreciation of the efficient and admirable manner in which our retiring President has discharged the duties of the position.

A rising vote was then taken and the motion declared unanimously carried.

Dr. A. B. Richardson (in the chair):

There being no further business before this meeting, I declare the Association adjourned to meet at St. Louis next year.

Adjourned.

C. B. BURR,  
*Secretary.*



## PRESIDENTIAL ADDRESS.

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*By G. Alder Blumer, M. D.,  
Providence, R. I.*

For a whole year such a thing as serenity of soul is unknown to the man who awakes to find greatness accidentally thrust upon him as President-elect of an Association like this. From that moment of initial apprehension to this one of extreme anxiety, the thought of delivering the annual address haunts him during every waking hour, and even racks his subconscious mind while he seems to sleep o' nights. If for an instant he forget his humility and, imagining a vain thing, think himself qualified to launch authoritative utterances *in vacuo* forthwith he recalls the saying of a British historian, "Before you attempt to write on any subject, be quite certain that you can say something fresh about it," whereat, with quickened olfactory sense, he sniffs the air of staleness that clings to his thoughts and their clothing.

He makes his heart a prey to black Despair,  
He eats not, drinks not, sleeps not, has no use  
Of anything but thought; or, if he talks,  
'Tis to himself.

And if there be solace of a sort in the voice of Ecclesiastes, warning us not unkindly against the needless elaboration of our own ignorance, "God is in heaven, and thou upon earth, therefore, let thy words be few," there is none whatever for the present writer in the caution given twenty-three years ago in this city, by a witty Secretary of State to a United States consul about to assume the duties of his office in Scotland. Bret Harte had insisted upon receiving his parting instructions in audience with Mr. Evarts himself, whereupon, the grand old man, wheeling about in his chair and casting one lank leg over the other, addressed the man of letters in these solemn, admon-

itory words, "Mr. Harte, you are going to Glasgow with laurels upon your brow; have a care that you do not browse upon your laurels." In truth, gentlemen of the Association, the very bay leaves and berries with which you have seen fit to bedeck an unworthy president, in this instance, must for the nonce be his food, and alas, baccalaureate "ambition should be made of sterner stuff."

With this prefatory confession, to which I add an acknowledgment most profound of the honor which this Association has conferred upon me, I shall proceed to make some discursive remarks upon a few subjects of general interest to our specialty, even as "the wind bloweth where it listeth."

#### THE OUTLOOK FOR PSYCHIATRY.

And what better beginning than briefly to refer to the happy event in our history which brings us together in this city at this time? We are met in affiliation with, and as a constituent member of, the Congress of American Physicians and Surgeons, such union having been effected since our last meeting at Montreal, when Providence was selected as our place of annual assembly, subject to this change in the event of that fact. We are sensible of the privilege which we thus enjoy, and have a fresh incentive to achievement in the stimulating fellowship. If there still be detractors, here and there, who allege that psychiatry is a laggard in the race of the specialties, the account which we may be permitted to give of our stewardship every three years, will either furnish proof of their contention or of our own claim to sit in this Congress, not by sufferance, not by virtue of seniority as the oldest national medical society on this continent, but solely by reason of good work well done. We may well rejoice, then, that we have this opportunity to come out into the open and show our colors. Shall we be held responsible, in fairness, if it be complained that the actual state of our knowledge of brain disease is not on a par with that of other departments of human pathology? The complaint may perchance serve the useful purpose of a goad, and so teach us to think less of the little that we know than of the much we know not, but it ignores the fact that the advance of knowledge must necessarily be from the simpler to the complex. In the whole medical hierarchy there is no specialty fraught with greater per-

plexities, inasmuch that it was natural and logical that, while we may ourselves claim to have approached and met its stupendous problems with no faint heart, and with a reasonable measure of success, recognition should have come to us tardily, under the slow but sure compulsion of achievement, while other branches of medicine, driving the ploughshare over easier and narrower fields of research—I say it not in disparagement—have seemed to advance by leaps and bounds, and to permit their votaries to hold high the head in “pride, rank pride, and haughtiness of soul.”

“In the long run,” said Professor Clifford Albutt, not long ago, “to construct a true method is a greater service to mankind than to discover items of knowledge,” thus furnishing the keynote to the Boyle lecture on the Rise of the Experimental Method in Oxford, commenting upon which a sympathetic critic, in felicitous epigram, remarks, that “A finger post for future guidance is a more lasting memorial than a mausoleum of misdirected energy.” During the past few years, and more especially during the year last past, we have had much occasion for gratitude in the provision of many such finger posts. The impotence of effete methods has been emphasized, and under the influence of such schools as the McLean, Worcester, Sheppard and Enoch Pratt Hospitals and the Pathological Institute of New York, to mention only a few, we have learned the lesson that the scientific study of psychiatry consists primarily in the study of the mental phenomena, not physical conditions; and that the study of the latter loses a large part of its value unless the mental phenomena have been well studied, and of itself can never give us an understanding of insanity. Those of you who were present at the annual meeting at Montreal, last year, may remember that this was the gist of Dr. E. Stanley Abbot’s impressive paper on the Criteria of Insanity and Problems of Psychiatry.<sup>2</sup> And the practical point of this, namely, that “by modern, scientific methods, scientific work in the field which is peculiarly the domain of psychiatry, can be done in hospitals not equipped with laboratories. The work so done will have the same value for subsequent laboratory work that the accurate and detailed symptomatology in general medicine had for modern pathological anatomy.”

There are two distinct schools of psychiatry to-day. In the one

are the men who say that we can group our patients clinically, that is, by their behaviour, while in the other are those who declare that we can only group them as we ascertain the lesions of the nervous system which give rise to the morbid conduct. On the one hand are the disciples of the microscope, on the other, those of the ward and bedside. Psychiatry may be said to be "up against" the same problem that faced chemistry years ago, namely, the necessity of formulating a working theory. To-day we know nothing of the manner in which the atoms and molecules behave, and yet so nicely have the chemicals been grouped, according to their action and reaction, that we can predict with accuracy the nature of the resulting compound to be formed by the union of two substances, neither of which we know, except in theory. In other words, we can make a prognosis in chemistry. And what was done for chemistry years ago, Kraepelin is doing for psychiatry to-day. More than any other man, of recent times, the great teacher of Heidelberg has brought us nearer to the place where we may safely predict the issue in a given case of mental disease. He has taught us how to study our cases with greatest profit alike to the patients and ourselves. Perhaps we were already studying each individual case carefully, but we were not comparing case with case. We had already noted that A was depressed and that B was depressed, and had, perhaps, grouped them roughly as depressed forms; but we had failed to wonder why A always shrank from the touch of our hands, while B remained indifferent. And so with the thousand little details which we had been wont to regard as of trifling import, we were led to be more careful, and, after we had compared these data, we were taught to take the whole clinical complex and compare it with this and with that other one, until the least common denominator had been found. Let us not complain if, in the majority of instances, that l. c. d. spells *dementia præcox*. "To be sure," says Professor Bleuler, of Zurich,<sup>3</sup> "the name is not well chosen, but the question is only that of a *nomen et flatus vocis*, and not of the thing." Even if "by naming a disease, you erect an idol with special qualities, which you set yourself at once to destroy," as Savage<sup>4</sup> once said, that wise man was quick to admit that "for the convenience of discussing groups of symptoms we have to label them." Best of all,



Kräpelin has instilled into our minds more of the scientific spirit. His own spirit is one of beautiful tolerance, and his system, in keeping with it, one of perfect adjustability. Frequently he is heard to say, "These things seem to be so, but more careful observation is needed to confirm them." The future will doubtless bring many changes to the Kräpelin classification—and none so likely to make them as the master himself—but, though its form may change beyond recognition, the system, of which the classification is but the product, is bedded on rock and will endure.

#### AS TO NEW YORK.

While for several years the New York State Hospital service, in the evolution of its centripetal system, has been made to feel "the whips and scorns of time," and under fardels unbearable "to grunt and sweat under a weary life," a saviour has appeared in the purely medical field, and set himself the praiseworthy task of making "good the final goal of ill" by showing the medical officers how to make a system of centralization useful in the development of the medical spirit in the state institutions. Dr. Ira VanGieson, eminent in his peculiar sphere, and working under difficulties that all must recognize, paved the way for his successor in the Pathological Institute. In a paper,<sup>5</sup> which every member of this Association should read and ponder, Dr. Adolf Meyer, the new director, outlines the aims and plans of the Pathological Institute for the New York State Hospitals in a spirit of such optimism that even he who catches ever so little of it becomes at once a man of confident to-morrows. At a meeting of this Association eight years ago, as some of us remember, Doctor Meyer expressed the hope that the day might soon come when a special pathologist, in the old sense, would no longer be needed. "I was then," he now says, "and still am, convinced that the progress of medical work depends not on the mere introduction of a man with skill for microscopical work, but on the promotion of a spirit of accuracy in whatever work is done, and in whatever is written or said about the patients. The various hospitals should be able to encourage their assistants to conduct *all* the practical medical work according to acknowledged medical standards. Every assistant should thus



acquire the habit of planning accurate statements of facts, statements of the indications for action and opinions, and also the nature of the disease, its probable course and the possibility of introducing therapeutic measures; and in the case of autopsy, the methods of getting at the facts and of formulating indications for more minute investigations. In addition to this, the physicians ought to be encouraged to record data which might be of advantage for collateral scientific progress, even if they cannot be directly utilized in the special case or for the specific medical indications just mentioned. But this work for science' sake is a secondary matter which, however, will come naturally." This sturdy champion of scientific honesty insists further that "we cannot lay too much stress on the necessity of planning work according to what is actually mature and wanted, instead of according to what perhaps may be done."

So many worlds, so much to do,  
So little done, such things to be.

No wonder that under such a leader the brethren of New York are encouraged to labor, sometimes against heavy odds, in the hope that a better day may dawn for them in the administrative sphere of their work. No wonder they have eagerly seized the opportunity furnished, at the instance of the President of the New York Commission in Lunacy, Dr. Frederick Peterson, to receive instruction under Doctor Meyer at the Central Institute, with the result that over sixty men of the service have gone back to their hospitals with lighter hearts and freshened zeal; and this notwithstanding the apparent subordination in New York State of the scientific aspect of the work to the business side as shown by the statistics of the handbook of the State Hospitals. For last year, while there were one hundred and twenty-three physicians in the fourteen State Hospitals, five years previously, when there were three thousand fewer patients, there were one hundred and twenty-five physicians. Of like significance, too, are the figures relating to salaries. The legislature of 1901 made an appropriation for salaries of officers amounting to \$265,000; in 1902 the appropriation was \$255,000; and this year the proposed appropriation is \$230,000, or at an annual rate of about \$9.50 per capita for the estimated number of patients for the next fiscal year.<sup>6</sup>

## THE EVILS OF CENTRALIZATION.

Thus we are brought naturally to a consideration of the New York situation in its political aspects. My apology, if apology be needed, for special animadversion upon the policy of the Empire State must be the fact that the prediction "As goes New York so goes the Union," has its frequent application in the administration of the charities of other states. And I have it very much at heart to warn other states against such disaster, so far as the insane are concerned. It may be assumed, for the present purpose, that most members of this body are familiar with the main features of state care in New York, and that they are aware that the Commission in Lunacy, instead of being merely an advisory board, is clothed with executive powers of an extraordinary character, insomuch that practically all authority emanates from the capitol at Albany. The system is one that checks ambition, subordinates the individual superintendent to the crippling spirit of bureaucracy and collectivism, and is in all respects inimical to the full and free growth, not only of the medical officers themselves, but of the hospitals over which they have been called to minister. Greed of power and arrogance of office had apparently reached their limit before the winter of 1902. One thought, "Hitherto shalt thou come, but no further; and here shall thy proud waves be stayed." But the message of Governor Odell to the legislature showed very clearly that the end was not yet. Theretofore each institution had had its board of managers charged with general management, direction and control of the hospitals, subject to the greater powers of the State Commission in Lunacy; and, subject to the civil service laws, the managers also had the power of appointing the superintendent. Under a specious charge of extravagance, which at once became ridiculous when it was remembered that the managers were without financial authority whatsoever, and that all proposed expenditures had been subject to review by the Commission, the Governor recommended that the boards be abolished and that their executive powers be vested in the State Commission in Lunacy. Bills embodying the Governor's recommendation were at once introduced and, after some twenty amendments had been made, not one of which affected the principles involved, in due course became law. Whereas, in its

report for 1889, the Commission had said, "The superintendent or chief medical officer of every asylum should be clothed with the absolute power of appointment and removal of all officers subordinate to himself. It is doubtful if the best results can be obtained under any other system," that doubt was apparently removed from the Commission's mind thirteen years later, when it not only acquired the power itself, but was given subject to the approval of the Governor, still further powers, namely, "to transfer superintendents and assistant physicians from one State hospital to another, to abolish the office of any of the resident officers or employees, and to transfer any of the powers and duties of the superintendent to another officer to be appointed by the Commission, to prescribe the form of, and the subjects to be embraced in, the superintendents' annual reports" (Save the mark!). The approval of the Commission was required before the superintendent could remove any resident officer. The sole power to appoint and remove the steward, which had formerly been vested in the superintendent, was given to the Commission. The Commission might summon any officers of the State hospitals to meet it at its office or elsewhere.<sup>7</sup>

No one who has had experience in what the world calls practical politics can doubt that the tendency of self-seeking men will be to look for reward for service rendered in the procurement of office in this powerful oligarchy controlling the bodies and souls of thousands of their fellow citizens and the disbursement of millions of money. For if the superintendent and assistant physicians may be moved about like pawns on a chess-board at the behest of the Commission, and the former may have any of his powers and duties transferred, under like mandate, to another officer to be appointed by the Commission, subject to the approval of the Governor, if the tawny lion himself is thus seen "pawing to get free his hinder parts," what shall be said of the thraldom of the smaller fry of such a shackled service? It is true, and happily true, that the President of the Lunacy Commission is a man eminent in character and attainments, and far be it from me to impugn the motives of the present Executive, but let us not forget that "a system of government must be judged, not by the probable action of any present official, but by the possible action of any future official."

Pardon me, gentlemen, if I seem to go into too great detail in

exposing the degradation of a once proud service. We may well exclaim in sadness, "How are the mighty fallen in the midst of the battle?" In the passage of this crushing legislation one cannot but be impressed with the seeming impotence of public opinion against political organization at Albany. Prominent citizens flocked to the Capitol to protest against the mischievous bills, among them the Hon. Wm. Church Osborn, ex-Commissioner in Lunacy; the New York and the provincial press hurled their anathemas; mass meetings were held; the State Charities Aid Association led a forlorn hope most valiantly in its attempt "to pluck up drowned honour by the locks;" not a man appeared to champion the new legislation and no written arguments were presented in its behalf. Words of truth and soberness are but wasted breath when the man to whom they are spoken is "wiser in his own conceit than seven men that can render a reason." And in this context I pause a moment to applaud the work of the State Charities Aid Association, a noble band of men and women without whose initiative and influence the State Care Act would not have been passed, on behalf of the medical officers of the State Hospitals. It has insisted for years that the salvation of the service lies in the retention in it of men of character. In the report from which I have already quoted, it says truly, "The character of the medical superintendent is the vital element upon which the efficient administration of a State hospital must depend, and the criterion of the success of any system must be based on whether it attracts and holds the best class of medical men as superintendents." After all, it is not so much what a man does as what he is, that gives him distinction everywhere; and when a medical superintendent is denied the opportunity of showing what he is, is compelled to suppress every instinct of self-sovereignty before such despotism as that of which we are speaking; if he have character, his soul will rebel against his oppressors, for "Rebellion to tyrants is obedience to God," and he will be sustained in his struggle to the bitter end, till once more the New York service shall have been made fit for the gentlemen who compose it. So let him fight the good fight as—

One who never turned his back but marched breast forward  
Never doubted clouds would break,  
Never dreamed, though right were worsted, wrong would triumph,  
Held we fall to rise, are baffled to fight better,  
Sleep to wake.



## THE INCREASE OF INSANITY.

No annual address can safely omit reference to that subject of perennial interest, to alienist and layman alike, the increase of insanity. And as no question is put with greater frequency to members of this Association by the intelligent layman, than "Is insanity on the increase?" it is well for us to have a few data in mind to answer him. That industrious statistician and eminent publicist, Mr. F. B. Sanborn, has kindly given me for my use some figures prepared for his report to the National Conference of Charities and Correction, which is just concluding its annual session at Atlanta. His report refers to New England only, though it is not without application to other parts of our country. A study of Mr. Sanborn's figures no longer leaves it doubtful that the insane are increasing in New England beyond the natural increase of the population, however much disagreement there may be as to the relative increase in different states. While everywhere the number of insane increases, so does the total population, with the possible exception of Vermont and Maine. These two states lose by migration to other communities about as many as they receive from outside, and the gain by births is small. Yet the example of Ireland, as Mr. Sanborn points out, gives proof that the insane may increase while the population diminishes, and this would seem to be true of Maine and Vermont. Census enumeration, whether of federal or state direction, is notoriously untrustworthy in this matter of the insane, otherwise the proof might be established beyond peradventure. Witness the inconsistency in the enumerations at different dates. In Maine the federal census of 1880 gave 1,542 insane in a population of 648,936; but ten years earlier it gave only 792 among 625,600, and ten years later it gave only 1,288 among 661,000. Mr. Sanborn takes the very moderate estimate of 1,400 at present, in a population of 661,000, although his own judgment is that the true number exceeds 1,600. There were under asylum treatment in 1901, when the new institution at Bangor was opened, 785 at the old Augusta Hospital; at present, after an interval of nineteen months, there are 865 in the two asylums. Thus we have a gain of asylum cases of about 100 in two years, or at the rate of fifty, or more than six per cent a year; and though the actual gain in the whole state must



have been less—the opening of a new asylum always increasing the new commitments beyond the average—it is evident to Mr. Sanborn, and his conclusion seems conservative, that allowance must be made in Maine for a gain of at least two per cent a year. Yet Maine's total population has not shown a gain of twelve per cent in thirty years. The returns from the Massachusetts Board of Insanity show, April 1, 1903, 9,644 insane persons, where six years ago there were less than 7,250, a gain of about 400 a year, or more than five per cent. Doctor Copp writes, "On October 1, 1897, there were in Massachusetts in public institutions, or boarded out, in almshouses and private families, 7,285 patients; on October 1, 1902, there were 9,121; percentage of increase for five years, 25.2 annually five per cent. I exclude private institutions because so many of their patients are non-residents of Massachusetts." Not to go into tedious detail with reference to the other states of New England, we may sum up thus the estimates made by the reporter to the conference:

|                     |        |             |        |
|---------------------|--------|-------------|--------|
| Maine .....         | 1,400  | Perhaps.... | 1,600  |
| New Hampshire....   | 900    | "           | 1,200  |
| Vermont .....       | 1,200  | "           | 1,200  |
| Massachusetts ..... | 11,000 | "           | 11,000 |
| Rhode Island .....  | 1,150  | "           | 1,200  |
| Connecticut .....   | 3,250  | "           | 3,300  |
| <hr/>               |        |             |        |
| In all New England. | 18,900 | "           | 19,500 |

in a population of about 5,800,000. Thus we have one insane person to 307 inhabitants.

#### THE PREVENTION OF INSANITY.

Whether or not insanity be on the increase, the fact that in New England and New York the ratio of insane to the general population is approximately as one to three hundred, is sufficiently impressive to bid us ask ourselves the question whether we are doing all in our power to prevent its occurrence. Personally I have no hesitation in answering that question in the negative. Never has there been a time, it is true, when the mental invalid has been better housed and more intelligently treated, and with our new departments for the insane in general hospitals, and our so-called psychopathic hospitals which are to be, the future is big with promise. But, gentlemen, you

will agree with me that preventive medicine is the highest development of medical science, and that the best way to diminish insanity is by its non-production. We all have opportunities to teach those simple lessons in social hygiene which are brought home to us more than to any other specialists in medicine, in the solemn doctrine, "The fathers have eaten sour grapes, and the children's teeth are set on edge;" but do we not, lest we hurt somebody's feelings, constantly shirk our responsibilities, as mental physicians, when we stand silently by as witnesses of the union of two stocks that is bound to be the parent of nervous and mental disease in the offspring? For one ambitious mother, who schemes to marry off her daughters, regardless of consequences, I believe there are ninety-nine (such is my faith in womanhood) who would listen to and not resent, even if they did not often act upon, a hint in hygiene from the family physician. To us alienists it is so reasonable to protest that no person of direct insane inheritance shall marry another of like taint, that we wonder why the criminality of such unions does not occur to the men and women, often of apparently average moral sense in other directions, who contract or countenance them. There is an appalling amount of ignorance on this subject—ignorance that has its origin Heaven knows where. Even people who pass in the community for reasonable beings, often imagine that there is initiated some mystic process, psychic or physical, that makes for sanity when marriage of whatsoever sort is consummated. Few of us have not been asked whether a neurotic or psychopathic patient would not be "all right" if he or she married; and in cases where insanity develops soon after marriage and before pregnancy, it is a common enough delusion that child-bearing will cure the psychosis. It is encouraging to notice, however, that the principle that prevention is the chief end of all medicine is gaining ground among the laity, and that the lay press has taken to educating the public on this very subject of insanity and marriage. In a recent article in the *Westminster Review*,\* Dr. A. W. Wilcox shows, by clinical and statistical evidence, that heredity and drink are the two overwhelmingly important causes of insanity, and advocates as preventive measures "the prohibition of the marriage of persons with a distinct family history of insanity or alcoholism, the permanent detention of persons after a third admission

to an asylum, and the granting of divorce from the unfortunate victims of incurable insanity or continued drunkenness." Harsh as such measures may seem to some, and shocking as they may be to the religious sentiment of others, it is well for all of us to reflect that the making a human life is as serious a matter as the taking one. Men and women do not realize how much insanity is multiplied in the land by natural increase by birth. Nay, more, the fact was brought out in a report<sup>9</sup> by Dr. A. W. Wilmarth, Superintendent of the Wisconsin Home for the Feeble Minded, presented last year at the National Conference of Charities, that the tendency in degenerate families is to rear a larger number of children than in those of average intelligence. "Large families are found among all grades of society; but investigation seems to indicate that the higher the mental training of the parents, the less numerous the family, as a rule." And Kiernan has shown that the average number of children in ninety degenerate families, which he had observed, was eleven, while multiple births occurred more than ten times as frequently as in the population taken as a whole. The largest family coming to Doctor Wilmarth's own personal knowledge was eighteen. Thus it appears that while nature tends to check increase in the case of gross bodily infirmity, it is otherwise where only the higher faculties are involved in the degenerative process. And in these days, when presidents of republics and of universities, and emperors, are exhorting to marriage and singing pæans to frequentative maternity, it is well that they ponder these things. Moreover, men and women of feeble intelligence are notoriously addicted to matrimony, and by no means satisfied with one brood of defectives. Not long ago, an elderly man of melancholy mien, came to consult me about his wife, whose insane conduct had made life a burden from the ill-fated day of their marriage, a year previously. The history bespoke a chronic psychosis of many years duration. "But this woman is not your first wife?" I queried tentatively, for the tell-tale dye of his mustache suggested the successful widower. "No, sir," came the reply, lugubriously, "she is my fourth wife, and I am her fifth husband." When such things are so, and when, to quote Solomon, whose exceptional experience constitutes a claim to cathedral utterance in this context, "Wisdom crieth without; she uttereth her voice in the street," is it not

high time, gentlemen, that our legislatures should enact laws looking to the effective prohibition of the marriage of the unfit? Suggestions of this kind have been pooh-poohed as without the pale of practical politics, but it is evident that nothing short of legal prevention will accomplish the end we have in view. A Connecticut statute of recent enactment forbids, under severe penalties, marriage between known defectives, and, further, prohibits the normal individual from contracting marriage or living as husband and wife with any such person. In North Dakota the Creel bill of 1899 passed one branch of the legislature. It provided that before a couple could marry they must obtain a license, which should be granted to such only as should be able to produce a certificate from a medical board to the effect that they were free from infectious venereal disease, tuberculosis, epilepsy, hereditary insanity and confirmed inebriety. Similar legislation has been attempted in other states, as well as in European countries, but the practical politician is prone to look upon all such measures as the academic suggestion of the reformer and so to kill them. Speaking of such proposed legislation for the feeble-minded, Dr. M. W. Barr, of Elwyn, Pa., says: "After all, there is a good deal of sentimentality and false modesty in the repudiation of the idea of laws controlling increase. We simply seek for the helpless, ignorant, irresponsible, what the wealthy and indolent do for themselves. But even if bills to this intent fail of passage because public opinion is not yet ripe for them, they at least serve the useful purpose, when introduced, of calling attention to the evils with which it is their purpose to deal. It is amazing how far behind the scientific enlightenment of the age public opinion is in this obvious exigency. Four centuries ago Sir Thomas More filed his protest against the reckless practice of his generation in his Utopia, "Furthermore, in chuesing wyfes and husbandes, they observe earnestly and stratelye a custome which seemed to us very fonde and folyshe." And thereupon he described what was done by "a sad and an honest matrone," and likewise by a "sage and discrete man," for the benefit of the parties of the first and second parts, adding that "they, on the other part, do greatlye wonder at the follye of all other nations, whyche he, in bying a colte, whereas a lytle money is in hazard, be so charye and circumspecte, that though



he be almost bare, yet they wyll not bye hym oneles the saddel and all the harneiss be taken off, leaste under those coverynges he hydde som galle or soore. And yet, in chuesing a wyfe, whyche shal be either pleasure or displeasure to them all theire lyfe after, they be so recheles," and so forth. And he concludes, "If such deformitie happen by any chaunce at any time after the marriage is consummate and finysched, wel, there is no remedie but patience. Every man must make his fortune wel a worthe. But it were wel done that a law were made wherebye all such deceytes myghte be eschewed, and advoied before hande." It's a far cry from Sir Thomas More to the twentieth century author of *Letters from a Self-made Merchant to His Son*, but we find that identical sentiment embodied in a delicious *obiter dictum* in which the Chesterfield of the stock-yards points out the perils which beset the son of to-day who goes a-wooing: "Marriages may be made in heaven, but most engagements are made in the back parlor, with the gas so low that a fellow doesn't really get a square look at what he's taking." There, gentlemen, is the whole philosophy of the subject in a nut-shell. And the deplorable thing about it all being that young people sometimes prefer in this matter to be among "them that sit in darkness," it behooves us, as alienists, in a figurative as well as an actual sense, to maintain a controlling interest in the switch that makes for brilliant illumination. *Fiat lux!* The myth that marriages are made in heaven has brought infinite disaster in its mendacious wake ever since the lie was first uttered. Marriages, although some of them may have the Divine sanction, are of the earth, earthy; and it is nothing less than sacrilege for erring man to hold Almighty God answerable for their blind folly while they run to cover under a make-believe ægis of heaven.

#### MARRLAGES OF CONSANGUINITY.

A long chapter might be written on marriages of consanguinity, but this one shall be brief. Whether or not those with first cousins, both parties being healthy, and exhibiting, each in relation to the other, the complement of contrasting affinity, might be permitted, is a debatable question. But such cases are rare enough to be a negligible quantity in practice, and do not affect the rule which German folk-lore has set to rhyme for



the safe guidance of those who, being near of kin, might otherwise contract a closer relationship:

Heirathen ins Blut  
Thut selten Gut:  
Sterben, verderben,  
Oder keine Erben.

Pathetic enough is a letter which comes to me while I am writing this paragraph. The lady rejoices that the outlook for mentally-stricken humanity is happily more hopeful in this age than ever before, and especially that hospitals for the insane no longer inspire, in intelligent people, a feeling of dread. "It is well I feel in this way," she writes, "since, with most of my immediate forbears cousins, and a family tendency to mental disturbance, which in my father's case took the form of softening of the brain, and in my mother's chronic meningitis, the outlook for myself is not over bright. Being without near kin, I am forced to give some thought to these things, and to make provision for whatever the future may bring, so it is comforting to know that they are not universally regarded with horror." When such apprehension of mental breakdown shadows the life of an intelligent woman, like my correspondent—and there are thousands of similar cases everywhere in our land—it is the veriest balderdash to prate about man's rightful intolerance of restriction in this matter of marriage. Short-sighted men and women, whose ideas of Christianity are so narrow as to restrict their interest in life to the salvation of the soul, are apt to forget not only what they owe to the body, but also their obligations to posterity. "It is as much a duty to transmit to the rising generation vigorous minds and bodies, as to hand down to them a firmly constituted society and government. It is in his own case that man ventures to neglect the knowledge he has acquired of the beneficial effects of careful breeding."<sup>10</sup> And the blame lies at his own door when intensification of a morbid strain, whether by consanguinity or otherwise, is the price of his selfish unwisdom.<sup>11</sup>

#### THE EXCLUSION OF DEFECTIVE IMMIGRANTS.

In line with the policy of prevention, which is here advocated, is that of keeping out insane and other defective immigrants by stringent federal statutes. Great credit is due to the Commission in Lunacy in New York for its wide-awake and in-

telligent activity in such exclusion. Proceedings under authority of the Laws of 1900,<sup>12</sup> which permitted the use of every endeavor "to secure legislation from Congress to provide more effectually for the removal of alien and non-resident insane," and the expenditure of "a reasonable sum therefor from the moneys appropriated for the use of the hospitals," the Commission sent to Washington, as its special representative, Mr. Goodwin Brown ex-Commissioner. As *amicus curiæ* it has been that gentleman's privilege to render our entire country a high order of public service, by giving effective testimony at repeated hearings before the Industrial Commission of Congress. And in this better rôle of catholic publicist, be it said in condoning parenthesis, he has expiated *pro tanto* the ill-conceived centralizing legislation at Albany, of which, as Commissioner, or the agent of the Commission, he was avowedly or putatively *magna pars*. Under the act passed March 3, 1903, Congress authorizes the exclusion of an immigrant who has been insane at any time within five years of the date of his arrival in the United States; and persons who have been twice under restraint for insanity, and all epileptics and idiots are also excluded. Moreover, the time for deportation is, by the act, extended from one to three years from the date of arrival, and the Secretary of the Treasury is made the sole judge of the question of causes arising before or after the immigrant's landing. While this immigration act affects the welfare of every state in the Union, its especial importance with respect to the state of New York is obvious, for while her foreign-born population is only twenty-five per cent of the whole, fifty per cent of the inmates of State hospitals are of foreign birth.

In the foregoing remarks the attempt has been made "to see the individual in connection and coöperation with the whole." If, in some particulars, I have seemed to suggest the Utopia of Sir Thomas More, at least we may derive comfort and inspiration, in pondering the tendency of modern morals four centuries after, from the cheery prediction of Lecky,<sup>13</sup> that "enthusiasm and self-sacrifice for some object which has no real bearing on the welfare of man will become rarer and will be less respected, and the condemnation that is passed on acts that are recognized as wrong will be much more proportioned than at present to the injury they inflict."

<sup>1</sup> British Medical Journal. Jan. 17, 1903.

<sup>2</sup> American Journal of Insanity. July, 1902.

<sup>3</sup> Dementia Præcox, by Dr. E. Bleuler. The Journal of Mental Pathology, Vol. III, Nos. 4, 5, 1902-1903.

<sup>4</sup> President's Address. Journal of Mental Science, Oct., 1886.

<sup>5</sup> Aims and Plans of the Pathological Institute for the New York State Hospitals." By Dr. Adolf Meyer. Printed at the Manhattan State Hospital East, Ward's Island, New York City, December, 1902.

<sup>6</sup> Charities. April 11, 1903.

<sup>7</sup> Tenth Annual Report of the State Charities Aid Association to the State Commission in Lunacy. November 1, 1902.

<sup>8</sup> Insanity and Marriage. By A. W. Wilcox. Westminster Review, August, 1902. Journal of Mental Science, April, 1903.

<sup>9</sup> Proceedings of the National Conference of Charities and Correction, Boston, 1902.

<sup>10</sup> George Darwin. Contemporary Review, August, 1873.

<sup>11</sup> See "Marriages of Consanguinity." (Editorial) British Medical Journal. April 18, 1903.

<sup>12</sup> Chap. 380, Sec. 6, Laws of New York, 1900.

<sup>13</sup> The Map of Life, p. 61.

## HOW DOCTOR BRIGHAM MET THE CHALLENGE TO DIAGNOSE INSANITY AT SIGHT.

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*By Stephen Smith, M. D., LL. D.  
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“What! Do you affirm that you can diagnose insanity at sight?”

“I do,” was the calm, dignified, but emphatic response.

This question was put by John Van Buren, Esq., at that time Attorney-General of the State of New York, and was answered by Dr. Amariah Brigham, Superintendent of the Utica Asylum for the Insane. The occasion was remarkable for the intense popular interest in the results of the trial, the scientific questions involved, and the eminence of the now historical personages engaged in its management. This occasion was the trial of William Freeman, a negro, for the murder of the Van Ness family in the vicinity of Auburn, Cayuga county, New York, on the night of the 12th of March, 1846. The frightful tragedy was thus described in a local paper:

William Freeman, a negro, a native of Auburn, who has recently been discharged after five years' confinement in the States Prison, having provided himself with weapons proceeded to the house of John G. Van Ness, in the suburbs of Auburn, and there, without notice and without any apparent motive, slew Mr. Van Ness, a wealthy and worthy citizen, Mrs. Van Ness, her sleeping infant, and her aged mother, and wounded mortally, it is believed, the laboring man who dwelt with them, leaving only the maid servant of the family, and she had only been spared because he had been disabled in the affray.

The murderer was arrested and confessed the perpetration of the crime, but showed no signs of regret; on the contrary, he freely described the incidents of the murder, and laughed continually during the recital. The incensed and excited public saw in his strange acts and unaccountable conduct, together



with the entire absence of motive for the crime, grounds for the belief that he might escape punishment on the plea of some wily lawyer that the prisoner was insane. Crowds of excited people gathered about the jail determined to seize the prisoner and lynch him, but the sheriff adopted such precautions that no serious effort was made at a rescue. But popular feeling now took another form. It was determined to resist to the last any effort that might be made to secure the escape of the criminal under cover of alleged insanity. The greatest vigilance was maintained over every movement in the legal proceedings in order to prevent that issue. What made the apprehension that this question would be raised more decisive was the circumstance that only a month previously a murderer had escaped the lawful punishment of his crime through the plea of insanity interposed by his counsel, William H. Seward, Esq. There was, indeed, a wide-spread belief that the criminal in the Van Ness tragedy was emboldened to perpetrate murder owing to the results of the recent trial. The excitement of the public was in some measure allayed by the remark of a prominent Judge that the prisoner would not escape conviction by any plea or defense of Seward.

But the Judge and the people were destined to be disappointed. Freeman was indicted and in due time brought into court for arraignment. The court-house was densely packed by an eager and excited crowd of citizens. The District Attorney arraigned the prisoner on the several indictments for murder. Freeman's appearance was said to be that of a man "deaf, stupid, unable to talk connectedly or to any sensible purpose; had an idiotic laugh upon his face, and, apparently, was ignorant of, or indifferent to, his own situation." To the question "Have you any counsel?" the prisoner replied, "I do not know." To the further question "Who are your counsel?" he replied, "I don't know." These questions led up to the tragic feature of these proceedings. The Judge asked the usual question, "Will any one defend this man?" A death-like hush fell upon the audience. The report states that "The spectators looked at each other in breathless silence, broken only when Mr. Seward, pale with emotion, but with inflexible determination in every feature, arose and said, "May it please the Court, I shall remain counsel for the prisoner until his death." It is added, "A murmur of



indignation ran around the court-room at this continued defiance, as it was regarded, both of public opinion and of public justice."

At that period the anti-slavery agitation had reached a degree of development which converted the prejudices of the great mass of the people against the negro into an uncontrollable frenzy when he committed crimes. Scarcely less bitter was the public feeling against the few anti-slavery sympathizers in the community who, though equally shocked by the murder, desired to have a fair trial given the criminal. But nothing could have occurred which tended to arouse greater popular indignation than the announcement that the negro was to have as his legal advisor and protector one who, under the specious plea of insanity, had recently secured the disagreement of the jury in a trial for murder. And it is certain that no man of less reputation than Mr. Seward would or could have had the courage to assume, voluntarily, the position of counsel for this self-convicted negro murderer. One prominent local attorney who was impressed with the conviction that the prisoner was insane or an imbecile, and that he might not receive fair treatment owing to the popular excitement, and had volunteered to defend him, publicly withdrew from the case rather than face the storm of indignation which awaited the counsel of the murderer. It was the abandonment of the case by this lawyer that led Mr. Seward, in volunteering to defend Freeman, to add, "I shall remain counsel for the prisoner until his death."

Mr. Seward occupied at that time a unique position in the political history of the State of New York. He had already been Governor of the State for two terms, and took rank among those advanced leaders of the Whig party who entertained and occasionally gave utterance to strong anti-slavery sentiments. No man of less note and courage would have dared to appear as counsel for the prisoner, and even he was denounced by the press and pulpit in unmeasured terms, and the most dishonorable motives were attributed to him in explanation of his conduct. Even the clergyman who conducted the funeral services of the murdered family had inflamed the public mind by appealing to instincts of self-preservation against any indulgence of moderation or forbearance toward "adroit counsel" in the

efforts to lower the standard of accountability for crime by the plea of insanity.

It appears from the record that Mr. Seward did not undertake the defense of Freeman from mere sentiment, but that he thoroughly studied the case and became convinced that the prisoner was hopelessly demented. He personally visited him in his cell and endeavored to converse with him, but found him hardly more than idiotic. He invited friends to visit the prisoner and study the case; their reports confirmed his experience. He also engaged the services of expert physicians, all of whom agreed that Freeman was suffering from dementia due to a severe injury to the head received several years before, and his delusion was that he had been wrongfully confined in prison, and that he would seek revenge on someone.

The District Attorney of Cayuga county, impressed with the gravity of the situation and the favorable character which Mr. Seward might give to the defense, summoned to his aid the Attorney-General of the State, John Van Buren, Esq., son of ex-President Martin Van Buren, then at the height of his professional and political fame. He was regarded as an excellent antagonist of Mr. Seward. The appearance of these famous men in court gave additional interest to the trial. The court-room was constantly crowded and the town was filled with strangers interested in the case.

The theory of the defense was insanity, and among the eminent alienists summoned as expert witnesses was Dr. Amariah Brigham. He was Superintendent of the Asylum for the Insane at Utica, and was regarded as the highest authority in his specialty in this country. He had previously seen the prisoner and fully sustained the theory of insanity. At the time of the trial he had desired to see the prisoner again and make a more thorough study of the case. In order to weaken, as far as possible, Doctor Brigham's testimony, the prosecution refused to allow him to examine the prisoner during the trial. He was compelled, therefore, to form his opinion of the mental condition of Freeman by daily observations of his appearance and actions in court.

The testimony of Doctor Brigham was regarded as the pivot on which the case should ultimately turn, and public excitement was at its height when he was called to the witness stand. I hap-

pened to be in Auburn on the day Doctor Brigham was examined and witnessed the remarkable scene which transpired, and which has never, to my knowledge, been fully described.

Doctor Brigham was a man whose personality would attract attention in any audience. He was very tall and spare, and his smoothly shaven face was as impassive and expressionless as marble. His eyes were piercing when fixed on an object, but expressive of humor when he was subjected to examination. The general impression which he made upon the spectators was that of a man of great intellectual superiority, but who had the most perfect self-control. On his direct examination he described in great detail the signs and symptoms of dementia, and gave his reasons for believing that this was the special form of insanity with which the prisoner was afflicted. He admitted that his opinion was based on his study and observation of the prisoner while in court. In reply to questions as to his ability to diagnose insanity at sight, he expressed the most positive opinion that he could do so ordinarily, and had often proved his power to detect the absence of insanity when insanity was feigned, by observation and without asking a question.

On the cross-examination, Mr. Van Buren resorted to every known stratagem and quibble to destroy the effect of these firmly expressed opinions. He ranged through the fields of literature, science, history, and philosophy to find some point of attack where Doctor Brigham might be vulnerable, but in vain, for he was met not only with prompt answers, but frequently the learned counsel was placed in limbo by the incisive repartee of the witness.

The character of much of this part of the testimony will appear from quotations from the record.

"Is suicide contagious?" asked the counsel.

"I think it was in the French army until Napoleon put a stop to it," the witness replied. It is stated that a titter ran through the audience and the Attorney-General renewed the charge.

"Is hysterics contagious?" he asked.

"It seems to be catching" the Doctor placidly said.

"Suppose, Doctor," said the counsel, with a sneer, "that I should go out and steal a hundred dollars and then come in again and sit down here, would you swear I was insane?"

"I think I should," calmly replied the Doctor.

At length the examination took a more practical form when the counsel inquired as to the method pursued by the witness in diagnosing insanity at sight. The witness replied that he relied on the features of the patient, which he always attentively studied.

"Which feature do you rely on in your diagnosis?" queried the counsel.

"I rely on no one feature, but study them as a group," was the answer.

"Do you rely on the chin?" he was asked. "No," he said. "Do you rely on the nose?" was the next question. "No," he said, "Do you rely on the ear?" the counsel persisted. "No," said the witness. "Do you rely on the cheek?" was the next tantalizing question. "No," was the answer. "Do you rely on the mouth?" the counsel continued. "Very much," said the Doctor. "Do you rely on the eyes?" was the next question. "Still more than on the mouth," the witness answered. "If, then, this prisoner were concealed all but his mouth or his eyes, you affirm that you could decide accurately whether or not he is insane?" queried Mr. Van Buren. "No, I do not state that; I must see all of the features at once," the witness urged. For a considerable time the astute Attorney-General dwelt on the features of different persons, endeavoring by his wit and sarcasm to throw the utmost ridicule upon the witness's method of detecting insanity at sight. With passive countenance and in the most quiet, self-possessed manner the witness answered all the questions, exhibiting not the slightest irritation at the gibes and jeers of the wily and witty counsel as he held up to ridicule before the jury Doctor Brigham's new method of diagnosing insanity.

The interest of the court, jury, counsel, and the immense audience had gradually increased as the examination progressed, until the nervous tension of the entire mass of people had become painful and the suppressed excitement was intense. The climax was reached when the Attorney-General exclaimed, with startling vehemence and emphasis on every word, "What! Do you affirm that you can diagnose insanity at sight?" "I do," was the calm, dignified, but emphatic response. Thrusting his thumbs into the arm-holes of his vest and turning towards the jury and the spectators, the Attorney-General demanded in



the most contemptuous manner and tone, "Point out to the court and jury an insane person in this audience." This challenge was the critical test of the competency of the witness on the credibility of whose testimony the defense placed its chief reliance. Doctor Brigham accepted the challenge without a moment's hesitation, and with an air of reserved confidence which impressed every one with the belief, or perhaps fear, that he would prove equal to the emergency.

It is impossible to describe the scene which followed. A breathless silence fell upon the court-room. The venerable Judge raised his glasses to his forehead and surveyed the excited mass of people about to undergo the ordeal of an examination as to their sanity. The large number of legal gentlemen within the bar arose to their feet and gazed at the crowded hall and passageways with intense curiosity. The spectators were simply awe-stricken when they realized that the crucial test was to be applied to them, and, being one of the number, I still feel the thrill of horror I experienced.

Doctor Brigham arose from his chair very deliberately and stood for a moment surveying the people, as if to determine where to begin his scrutiny. He was as white and emotionless as a marble statue. Turning slowly to the left or first tier of seats he began a deliberate survey of the spectators, scanning the features of each one with the apparent confidence that he could detect the faintest traces of insanity. As his keen, searching eyes glanced from tier to tier of seats the suspense was simply unendurable. He had reached the middle aisle and yet no one had been pointed out as insane. Five hundred faces had been scrutinized and no group of individual features had responded to the test. That portion of the audience at least breathed more freely. An incredulous smile began to play about the mouth and light up the mobile features of the Attorney-General, while a greater earnestness of manner and intensity of scrutiny were apparent in the witness. Deep furrows appeared on his pallid face, and his eyes assumed a piercing brilliancy which made every one shrink on whom his gaze was momentarily fixed. I felt myself transfixed when I realized that my face was focalized on his vision, and I experienced a sense of the greatest relief when I saw that I had safely passed the trying ordeal. A sigh of relief followed along the rows of seats as the glance of



the great expert swept over them. The area of faces still to be examined was now rapidly diminishing, and but one fourth of the audience remained to be scanned. It was apparent that thus far either there was no insane person in the crowd, or if there was, the witness had failed to detect such person, and hence had failed to answer the practical test to which he had been challenged by the prosecution and which he had accepted without protest.

Suddenly the wandering eyes of the expert became fixed; his features relaxed and assumed their customary impassiveness, and it was evident that he had discovered the object of his search. Stretching out his long arm and pointing with his finger toward a person on one of the rear tiers of seats, he quietly said, "There is an insane man." At the instant a man, as if struck with a bullet, sprang from his seat and, wildly gesticulating and shouting a volley of oaths against any one who would call him insane, rushed down the aisle toward the bar. The Judge rose hastily from his chair as if about to escape, the lawyers were panic-stricken and mingled with the crowd; but Doctor Brigham stood perfectly self-possessed, while the officers struggled with the lunatic in their efforts to remove him from the court-room.

The whole scene was intensely dramatic and the termination was a surprising ovation for the triumphant actor, Doctor Brigham. The prosecution was completely nonplused, and the witness was allowed to retire without further tests of his ability as an authority in the diagnosis of insanity at sight. The man who was pointed out as insane proved to be a harmless lunatic who had strayed into court from a neighboring livery stable. To break the force of Doctor Brigham's successful test, however, the prosecution circulated the report that Mr. Seward, in anticipation of this test being made, had caused the insane man to be placed in that seat, and that Doctor Brigham had previously seen him. This absurd story only heightened the effect of the favorable impression which Doctor Brigham's successful answer of the challenge of the Attorney-General made upon the court, jury, and the people.

The final issue of the case was the conviction of the criminal for murder in the first degree. Public feeling would admit of no other verdict. He was not executed, but died in prison,

demented to idiocy. An autopsy confirmed the correctness of the defense—insanity.

#### DISCUSSION.

THE PRESIDENT: How can we sufficiently thank Doctor Smith for giving us this delightful paper? However much my own bosom may swell with pride at the thought that I was, at Utica, the descendant of so eminent a man as Doctor Brigham, I must always regret that his mantle as a snap diagnostician did not fall upon his descendants—up to my time at all events.

DR. HENRY M. HURD: We have listened with the greatest pleasure to this paper, and some of us are old enough to remember when Doctor Smith was Commissioner in Lunacy in the State of New York, and still remember the noble work he did. I have occasion every year to deliver a few feeble ineffectual lectures on medico-legal subjects connected with insanity, and the other day I looked up the Freeman case. Those of you who may be interested to know more about it will find in the *American Journal of Insanity*, for October, 1848, a very good account of it.

One fact I may be pardoned for referring to, and that is that Freeman was unquestionably innocent of the crime for which he had been imprisoned, and the injury to his head which made him insane was received in the prison at Auburn, and was due to the inhumanity with which he was treated. It is an impressive fact that an innocent man, confined unjustly in a prison and treated with inhumanity, developed mental trouble and was guilty of this serious crime. I voice the sentiments of all here when I express our thanks to Doctor Smith.

regions the dura is firmly adherent. The inside of the dura appears free in the frontal part; *over the right parietal and all around the pole of both occipital lobes* there are, however, *marked clots inside the dura* and a rather large blood clot *on the right cerebellum* and a more limited membrane over the left. *Only in the left frontal fossa* is there a small clot, *and in either temporal fossa* several diffuse membranes and a few small clots. The blood vessels are hard at their exits from the canals only. There are *marked contusions especially of the region of the fusiform lobe* on the left and a little less under the right third temporal gyrus. Brain as a whole weighs 1,260 g. *The floor of both temporal lobes proves greatly contused to the ventricle.*

The lungs weigh 450 and 570 g., with thickened pleura at the apex, are slightly œdematous, and there are bronchopneumonic foci in both lower lobes. The left pleura has several ecchymoses and a small amount of fluid in the cavity. The heart weighs 250 g. and has a decided thickening of the edges of the mitral flaps, with small, rough nodules; no atheroma of the aortic valves or the beginning of the aorta, but a number of ulcers in the descending aorta.

The kidneys have a few small cysts and weigh 100 and 104 g.; old adhesions of the descending colon and omentum to the abdominal wall; 12 gall-stones.

Walter B. Cannon, of Harvard Medical School (Cerebral Pressure following Trauma, *American J. of Physiology*, Vol. 6, p. 91-121) lays much stress on the *swelling* of the injured tissues as a source of immediate rise of intracranial pressure. I consider this one of the most important contributions to this problem, and an excellent explanation of many otherwise mysterious "molecular changes."<sup>1</sup>

Whether the *cranium* is fractured or not means relatively little. It would seem, however, that for chances concerning life, a relatively extensive destruction of the skull is rather more favorable than otherwise. I can present a photograph of the skull and brain of a patient (*Case 2, M.*), who was kicked by a horse at the age of 7; pieces of bone were removed. The patient had more or less persistent frontal headache and slight deafness on the left side; but no mental defect. She married, brought up a family (the children suffer from frequent headaches) and has been perfectly well. At the age of 75, she had a shock with sensory aphasia, a renewed attack at 77, and a few

<sup>1</sup> On this ground of changes of osmotic relations, we understand why Polis found animals previously made anæmic more endangered by concussion.

weeks before death she was admitted in a condition of depression and dementia; the autopsy showed a shrinkage of the middle part of the left first temporal gyrus, accounting for the terminal aphasia, and no other macroscopic brain lesion traceable to the injury, notwithstanding the huge defect of 10 by 2 cm. in the skull.

The following types of *residuals* of injury and their consequences deserve mention. We find rather frequently an incrimination of *depressions of the skull*. Our series does not happen to include any such case. A few are mentioned by Starr (Brain Surgery, p. 267-271), and in my therapeutic remarks.

In two of our patients *residuals of subdural hemorrhage* proved to be of decided importance. One case has only been examined operatively, the other by autopsy. *Both give valuable hints for operative treatment even where there is no depression.*

The first case showed a clot in process of organization and was considerably benefited by operation. The second case showed an ossified plate and spur over the left frontal lobe, besides the effects of a fall in the terminal status epilepticus.

Case 3. F. T., a mill operator, married, about 38 years old, of cheerful, sociable disposition, about January, 1897, was struck on the head by a 57-lb. weight. He was not knocked down, but there was a *hematoma of the scalp*. Since then the patient has had *attacks of headache and dizziness*, a few times he vomited his coffee in the morning. *His character changed*; formerly jolly and active in social enterprises (theatricals), he became silent and non-responsive; at times he wandered away for several hours at a time, and would stone the friends who followed him; about June his work became less efficient owing to the headaches; he thought the workmen put things in his way; it was their fault that he could not do things. About June 25 he had a *violent outbreak*, in which he nearly succeeded in killing his wife with an axe and smashed furniture. July 2 he had to be committed; in an attack of headache he again had become excited, complained of being full of electricity and that his wife and children might injure him; the pictures on the wall bothered him; he ordered everybody out of the room.

Under observation he showed on admission (July 2, 1897), and for nearly three weeks, a condition of *sulky delirium with vehement blind outbreaks*; he would get up and rush to the window and smash the glass, or clutch the steam-pipe and shake it violently to "shake out the steam." He talks deliriously in German, says he sees faces, one piece of furniture on the ceiling, another hanging from the win-



considering the rough method of a usual brain-autopsy. Since we know of intracranial hardening with 10 per cent formalin before the brain is handled, these findings have been rare.

Many of the lesions are really a hemorrhagic infiltration of contused brain-tissue, such as we have met with in Case 1, a patient with typical senile dementia, who fell accidentally in the ward, backward on the occiput. He was unconscious one-half hour, but the third day he died in coma with broncho-pneumonia. No fracture. Over the right parietal lobe and all around the occipital poles, and especially around the right cerebellar hemisphere there were subdural clots; also a few in the left frontal and both temporal fossæ; moreover there were deep hemorrhagic contusions of the fusiform gyri less marked on the right.

Case 1. L. H. S. Born 1831. Father and two aunts were insane. No accurate history is available. In 1898 the patient is said to have had a sunstroke. He then stopped working. During the last months he has become very perverse; he would get up and build a fire in the night, thinking it was day, and go out on the street and sometimes stay out all night; he would get excited, and did not let his wife have wood and coal. He wandered away from his home to an adjoining town and walked six miles to his daughter's, saying he was going home. The physicians found him exhausted and restless; slow in answering and talking irrelevantly; he walked about the room, went to the window and looked out and laughed.

The patient was admitted January 12, 1900. He was restless, walking about the hall, saying little except: "I guess I will go home this evening." He was inclined to resist his bath, but submitted to the rule; at supper, however, he refused to eat because he was offended at having been bathed. When he is requested to do something he is very contrary and irritable and inclined to fight. He requires to be pushed into the dining room; then he is too angry to eat; he walks about the room, refuses to be seated, takes off his coat without any reason except "It is none of your business." He requires constant watching lest he take off his clothes and shoes; but January 14 and 15 the attendant has to undress him. After the interview he refuses to leave the room.

Physically he claims to feel well; he is rather tall, somewhat emaciated and sallow; he has varicosities of the legs, thickened and tortuous radials, beginning arcus senilis, no heart lesion; a barrel-shaped chest and scaphoid abdomen. The hands and forearms shake and the tongue has a gelatinous tremor, and the gait is relatively slow and tottering.

In conversation the patient is suspicious and evasive and irritated by questions and unable to grasp the whole situation, takes the exam-



ination for a "mess of lawyers," frequently answers "None of your business." Or to the question, "Where are you?" he says, "Don't you know? Well, I won't tell you; well, I would give up my business," and when he was told it was the Worcester Insane Hospital, he said: "I would like to know why." The date was given as Friday, in "November, ain't it?" 1890, 1889 or 1890. The localization in time both of remote and recent events is very defective and variable. "I shall be 70 the 30th of this month, November. I was born in Boston, and went to school for a year; I had two brothers and two sisters; the youngest sister is only three years old"; and the brothers' age he does not remember. His father is living in S. and 73 years old. When the discrepancy was pointed out he said: "Can't you take a record from the Bible?" When did your father die? "Well, he is living and was living—and you want to get me mixed up in a scrape—well, I had just as leave as not." He says his wife is in B., Mass. (correct), and he has four children; two days later he says his wife lives in S., Vermont, and that she is 26 years old, that he has no children and can't tell "exactly" when he was married, "I think 6 years ago." January 15, he takes this place for the Horticultural Building in Boston. He thinks he has been here not more than three or four weeks (two days). He mentions no definite delusions or complaints.

January 17, 1900, the patient fell on the floor on the back of his head. He immediately straightened out and stopped breathing until the attendant performed artificial respiration. He remained unconscious about half an hour, then became gradually clear, and in about three hours said to the attendant he was all right. He fell asleep, but at 4 A. M. the physician found him lying flat on his back with open mouth, fixed eyes, deep breathing and slight rattling. There were no symptoms of paralysis, no difference of pupils. During the examination there were several hiccoughs. Nothing was found in heart and lung. No fracture of the skull was detected. The temperature was 100.2°; pulse, 80; respiration, 15. At 9 A. M. there was much flickering of the muscles of the thigh and leg on both sides, and on the right an occasional contraction of the muscles. The toes are in dorsi-flexion, which is increased on plantar stimulation and especially hard to overcome on the right; cutaneous and tendon reflexes about normal. There is withdrawal from pricks only at the sole of the feet, hardly at all in the arms and hands, slightly in the face. Forward movements of the jaws stop rattling. Towards evening he could be roused partially by calling his name, and he swallowed fairly well, but he became more and more comatose and the temperature rose to 105° in the course of two days. He died at 11 P. M., January 19, 1900.

*Autopsy.*—No fracture of the skull was found, but several hyperostoses on the inside of the frontal bones, especially marked on the left, and several others in a depression just behind the bregma. To these

## THE ANATOMICAL FACTS AND CLINICAL VARIETIES OF TRAUMATIC INSANITY.\*

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Considering the meagre knowledge of unmistakably reliable facts of etiology in mental disease, traumatism would seem to furnish unusually clean-cut conditions of interference with the mechanism of sensory-motor plasticity. Yet both as to frequency and the nature of the actual conditions there is a great uncertainty. Some writers include—bowing to the crude sense of the word—all mental disorders in whose etiological constellation any kind of traumatism plays a rôle, even a surgical operation on a totally indifferent organ, or a fracture of an ankle (curiously enough they are not consistent enough to include the puerperal cases); also, insolation is frequently included. In this study, I shall consider chiefly those disorders which are the direct and obvious result of some traumatic interference with the brain. Theoretically, trauma figures prominently among the distinguishable types of possible disturbances of the cerebral functions, through the rôle it may play in disorders of growth and of nutrition, inflammation and tumor-formation, and in derangement of blood and lymph circulation. Even in the “psychogenic” disorders, trauma has its place in the form of mental shock. In most of these directions one would expect to deal with a very definite entity, a welcome and solid ground in this period of rather too verbose explanations by auto-intoxication.

Unfortunately the simplicity is only apparent. There seem to be so many ways for the nervous system to suffer from trauma, even if we limit ourselves largely to the brain.

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\*Based upon observations accumulated from 1896-1902 at the Worcester Insane Hospital, with the much-appreciated help of its staff.

The most important ones are collisions with other objects, falls, or a meeting with projectiles. Both types produce direct local and more general effects. It further seems quite important to consider the sensory effect—the variable extent of fright, and the emotional consequences of loss of work and litigation.

In order not to mix together a large mass of heterogeneous material we shall try to maintain clearness and distinctions by limiting ourselves as closely as possible to the effects of concussion and actual direct traumatisms.

What effects can traumatism have on the structure of the nervous system? We might distinguish:

1. The direct focal and the more diffuse destruction of the nerve-tissue or of parts of it; and the reaction of the tissues:

- a. The immediate effects—œdema;
- b. The scar formation.

2. The distinctly diffuse commotions in which the general reaction and the psychic elements preponderate; including the remote reactive results of exaggerations of vasomotor and emotional responsiveness. A brief review of some effects of trauma will give us the material on which to make the distinctions.

*Simple Contusions.*—The general arrangement of the cranial cavity furnishes special opportunities at the point of maximum impulse and a point opposite it; further at points where the unevenness of the base or the existence of the tentorium leads to focal contusions. Such disorders are seen in patients falling, in epileptic convulsions for instance, chiefly at the tips of the temporal lobe, at the base of the frontal lobes and as Duret showed, in the central gray matter surrounding the 3d and 4th ventricle. The probable reason for this localization is the great unevenness of the base of the cranium. Tillman claims further that *lacerations* are produced in the brain itself at the points at which tissues of different specific weight meet—this would be the case in the ventricular linings and in the pia owing to the difference of the specific weight of the cerebro-spinal fluid and the tissue, and especially at the juncture of gray and white matter. The *hemorrhages* as such are as a rule not very copious unless the meningeal arteries burst, or where an already affected blood vessel yields—sometimes several days after an injury in the so-called delayed apoplexies (Bollinger). The statement that the ventricles were filled with blood should be taken with caution

dow, the children all topsy-turvy, and breaking all the windows—"That won't do, Mary." In the struggle with attendants the patient broke a rib and was restrained in bed. He was inaccessible to conversation till July 23, when he began to listen and to give an account of his headaches and the injury. He still would lie on the floor, was *indifferent or sully, diffident*, urging unreasonably to go home. July 28, he gave a patient 15 cents with which to buy tobacco, and when he did not get it, he said "fool me," had a violent outbreak and began to beat his head against the wall, and had to be restrained. He is found in great distress: "Help me, help me, for heaven's sake help me—take off the fetters, take off—take off—the—the—the—, these fearful flies eat me up—I—I—I don't do anything. I am one of the best of men." Can't you be reasonable? "I am reasonable." You must stay in bed. "I can't stay in bed; the bed oppresses me. I will never leave my bed—I want to go home to my wife and to my baby—my baby (the patient has five children living); I do not cry; I do not cry; my baby—my baby—my children, children, children, etc."; quite inaccessible to reason. He complains of *fearful dreams*; one morning he kept shouting: "Everything is dry in the garden"; one night he was "dead in the lower world." At times his good will can be held for a few moments, but he rapidly drifts into shouting, clamoring for his wife, or he makes a sudden assault. August 2, *disclaimed all memory of assaulting* the physician two days before, was much surprised, and said quickly if he did so he was sorry. The next day he was lying on his back with the bed sheet drawn tightly from the feet to the head, the ends tucked under him, the hands folded in prayer; he could not be diverted.

The first *physical examination* was *essentially negative*. The patient was a short man of tremendous muscular power without any nervous or other symptoms.

The further observation showed that relatively quiet periods with fair orientation but unreasonable general attitude would, with or without attacks of severe headaches (which yielded slightly to phenacetin 0.80, but were aggravated by acetanilid), show sudden outbreaks either of fault-finding, or a blind attack without warning, or dream states. A nocturnal noise upstairs started him to claim the next day: "The ceiling is coming down; I am oppressed." He complains that he cannot understand the people, that he has forgotten all he learned at school, cannot learn to read English. At times he keeps a promise to abstain from violence, but is easily irritated again. "If you want to kill me now, kill me; I cannot stand this now any longer; I don't know what this means; I want to go to my children." He claims he can work in the mill. At times he has a *summary remembrance* of his troubles. Thus, on December 9, he admitted "I fought with the attendants, but I do not remember why." "That is an old affair, I had rather not speak of it. It is not my nature to speak so



freely of my own affairs. I do not remember why I struck; they laughed at me, and I got tired of it." "I would like best if I could shut my eyes."

A renewed examination of the head showed nothing but *very slight lateral nystagmus* on extreme turning of eyes, and *on tapping the scalp with a hammer a painful spot over the right parietal protuberance*. The headaches are mostly right-sided. A permission for an exploratory operation was obtained, and it was carried out by Doctor Homer Gage as follows, on December 27, 1897:

The shaving of the scalp exposed a small scar over the right parietal prominence near the "painful" spot; the usual incision was made with this scar in the center; the skull was found intact, both the external and the internal plate. The dura appeared somewhat bluish, and, on incision, brownish fluid escaped, and brown half gelatinous material was found. A second trephine opening was made further forward, and the same material of partially organized clot was exposed. It seemed possible to remove practically the whole through the somewhat enlarged opening. The pia appeared normal. The fluid contained small hematoidin needles and very few leucocytes. Its amount was difficult to judge, the thickness of the layer was hardly more than 5 mm., and the whole mass probably not more than 25 or 30 cc. The wound healed perfectly smoothly.

The patient did well. December 30, in the evening he was sulky, irritated by "foolish" questions; he had rather severe headache, but was relieved by phenacetin 0.80. It reappeared a little for a few days only. The patient remained rather diffident and impatient, and only once (January 28, 1898), when being photographed, he burst out suddenly: "Ich will nicht, ich will nicht; ich will nach Hause gehen"; he took off his coat as if for a fight and started against the photographer. He attributed the outbreak to his impatience.

On his discharge, January 30, 1897, the patient was unappreciative. He did well until March, 1898, when, after an alcoholic excess, he broke up the furniture in the house and threatened the family; and in December, 1898, he was arrested for disturbing the peace (intoxication) and sentenced to three months in jail. Since then he has done well when abstaining from drink.

*Summary.*—Traumatism without marked primary results, except hematoma of the scalp. Change of character; sulkiness, irritability; intolerance to alcohol, attacks of headache with violent outbreaks with only summary remembrance. Removal of an old subdural clot over the right frontal lobe. Disappearance of headaches and outbreaks of violence; but residual susceptibility to alcoholic excitement.

Case 4. F. L. M. Born 1838; patient's grandfather died insane; an aunt died with senile dementia at 70, and her brother became insane at 44, and is now 50 years old and has attempted suicide once or twice.

Personal History: Patient married in 1869, had no children and



The *striae Lancisii* are well impregnated (only in the anterior parts of the corpus callosum since the posterior parts were treated too late to give the reaction). The great mass of the fibres of the stria forms the median edge of the "olfactory gyrus," and its "white substance," the so-called stria media, and a row of cross sections spreads to the side over the callosal surface. There are no transitions into the cingulum.

These findings would make it quite probable that the great mass of the fibres of the human median stria Lancisii has its origin in the olfactory bulb.

f: The optic nerves and chiasma had shown no obvious differences macroscopically. The result of the Marchi reaction is satisfactory only as far back as the beginning of the optic tract.

The left optic nerve is full of black lumps in a concentric arrangement, so that the central bundle and a thick peripheral layer appear deeply affected, while the intermediate ring is almost free. Nearer the chiasma the central bundle is very large and the free ring narrower.

The right optic nerve shows a fair number of degenerating fibres, rather diffusely scattered over the area; only near the chiasma there is a slight tendency towards concentric arrangement—a rather large dotted central bundle surrounded by a free zone and a superficial dotted border leaving the mediodorsal border almost free.

The optic chiasma shows very plainly the *semidecussation*. The details of the arrangement of the fibres will be published in another connection.

The slight degeneration in the right optic nerve was attributed by me to the next type of independent degenerations, until the possibility of interretinal fibres was again suggested by J. Herbert Parsons (Degenerations following lesions of the retina in monkeys. Brain, Autumn, 1902, p. 257).

As independent damage we put down the following bundles:

1. Numerous fibres in the *splenium* of the corpus callosum (easily injured by the tentorium?).

2. The cerebral peduncle and pons show but little degeneration and certainly no compact bundles.

3. The tegmentum, however, is affected in a peculiar way in the median and lateral fillet. From the nuclei of Goll and Burdach degenerating fibres can be followed into the interolivary stratum and the entire field between the two hypoglossal roots. The pyramids are almost free, the one being slightly more affected than the other, whereas the degeneration in the fillet and in the posterior longitudinal fasciculus is fairly symmetrical. Whether Gower's tract contributes to the lateral fillet is not certain. The degeneration is followed up to the midbrain.

4. The superior cerebellar arm is similarly affected, also the corpus restiforme and the marrow of the vermis.

5. *The fifth nerve* has a fair number of degenerating fibres on both sides. *The nuclei of the eye muscles* show no well systematized axonal reactions (sections too thick and only stained with hematoxylin).

The principal conclusions derived from this brain are:

1. The median striae Lancisii are degenerated after destruction of both olfactory bulbs.

2. The optic chiasma shows unmistakable semidecussation.

3. The *indirect scattered lesions* through the concussion are exceedingly extensive and involve mainly the splenium of the corpus callosum and the long paths—the fillet and the superior cerebellar arm. There is also a slight complication of both fifth roots and of the “normal” optic nerve.

The extent of such widely spread disorders undoubtedly has something to do with the differences in the progress and outcome of cranial injuries and the effects of operations on the brain.

The study of *Scagliosi* (Ueber die Gehirnerschütterung und die daraus im Gehirn und Rückenmark hervorgerufenen histologischen Veränderungen, Virch., Arch., Vol. 152, p. 487–525), contains an extensive review of the experimental and anatomical material. In his experimental work (concussion of the brain) he found diffuse changes in the brain and also the spinal cord (which was not hit directly), and concluded that the glia cells are first altered (within 7 hours), the nerve cells within 24 hours, and that the disorder is one of anomalous nutrition since otherwise its rapid spreading could not be understood.

The changes described in my case are, however, such as can be explained by more or less direct contusions and secondary degenerations; for the changes obtained by Scagliosi in rabbits evidence is yet to be furnished in man—a rather interesting problem, to be pursued with due reference to the studies of Cannon. *What is the ultimate fate of such changes?*

In the older literature we find many statements concerning *secondary progressive lesions* developing as a result of the direct effects of traumatism. *Friedmann* and *Kronthal* have described a few cases of *traumatic neurosis* in individuals, who years after the accident developed premature *arteriosclerosis* and hyaline degenerations of vessels, an outcome which would not surprise one considering the vasomotor excesses to which the patient is exposed. Our Case 7 might be mentioned in this connection (p. 121); but I should call the arteriosclerosis a coincidence.

occasional whistling or whirling sensation, staggering, a loss of consciousness, double vision, slight headache, emotionalism, faultfinding. Admitted at 58, with deafness in the right ear, convulsions, loss of memory, episodes of sulky or silly behavior, general deterioration. Death after a fall in a status epilepticus. Fresh traumatic hemorrhages. Ossified plate and spur inside the dura to the left of the falx, probably from an organized clot.

*The lesions of the brain as such* leave varying residuals, the most frequent are *small foci* of softening or defects of cortex in the regions of predilection, the base of the frontal and temporal lobes. Köppen makes much of the distinction from other foci of softening by the fact that in the traumatic gouging out of cortex there are residuals of blood and, moreover, very often at least, and an absence of the glia margin just underneath the pia.

The latter condition is of value when present; the preservation of the "molecular layer" means nothing, since in several of my cases of certainly traumatic origin the subpial glia was very broad over some of the foci.

Besides these palpable focal lesions we find furthermore a great number of *diffuse effects* which are usually overlooked and cause no focal symptoms, but which are well illustrated by the following case:

Case. 5. The brain was that of a boy who exploded his gun and had his left eye and the base of the left frontal bone smashed by the breech-pin, which was extracted after removal of the eye by Dr. Swazey at the Worcester City Hospital. The boy seemed to make a good recovery although there was a distinct prolapse of brain fungus into the skin covering the wound. He was up and was bright without any complaints. Clinically no neurological examination was made, because superficial observation roused no suspicion of any special brain-symptoms, other than the fact that the boy had lost the sense of smell (statement of the nurse). There were no abnormal mental traits; the patient was up and quite well, until a sudden change occurred four weeks after the accident. When I saw him he was in a coma which had developed with fever within two days and in which the patient died on the third day. Doctor F. H. Baker kindly gave me the brain for examination. There was no meningitis, but some pus in the lateral ventricles, which had not been reached by the probe of the surgeon.

The brain was hardened in formalin and subjected to a study with the Marchi method (frontal sections through both hemispheres).

In short, the *primary destructive lesion* includes:

1. The left eye and part of the optic nerve.

2. Almost the entire orbital surface of the left frontal lobe from the anterior pole backward to within about 1 cm. of the orbital margin of the cortex (or lateral olfactory gyrus) on the mesial and 2 cm. on the lateral side of the orbital surface. The mesial aspect of the left frontal lobe shows a destructive lesion only along the crest of the gyrus rectus. The median olfactory gyrus and the pedunculus corporis callosi are intact. The white matter participates slightly in the posterior area, and probably to a depth of 1 cm. further forward. Beyond the area of actual destruction (infiltration of granule cells in a loose spongy net, there are in some parts, especially towards the corpus callosum, some perivascular extravasations of blood; and the sheaths of most blood vessels are rather heavily loaded with blackened material.

3. In the right frontal lobe, the anterior end of the gyrus rectus and of the adjacent orbital cortex is involved superficially.

4. The olfactory bulbs are embedded in the debris of the crushed substance of the frontal lobes.

The consecutive "Wallerian" degenerations are as follows: *In the frontal lobe* rows of Marchi granules are seen to proceed into the white substance and especially into the knee and rostrum of the corpus callosum; the distribution of degenerating fibres is smallest in number towards the gyri of the convexity; and the bundles collect most densely in the anterior limit of the internal capsule; bundles of considerably blackened fibres being side by side and distinct from bundles which are quite free and evidently come from the convexity and from the corpus striatum. The left internal capsule shows considerably more blackened bundles than the right, in accord with the extent of the lesion.

The degenerating fibres in the rostrum of the corpus callosum can be partly followed to the lateral aspect of the right frontal lobe.

The caudal course of the frontal projection-fibres is difficult to establish owing to the imperfection of the impregnation. *Unmistakable strands of degeneration* are found:

- a: In the ext. capsule;
- b: In the internal capsule, rather diffusely scattered (even in the post. limb);
- c: In the lamina between the head of the caudate nucleus and the frontal median cortex;
- d: In the cingulum;
- e: The olfactory apparatus: *Both olfactory tracts are in complete degeneration.* The region of the caruncula is not well impregnated, and the connection with the uncus, the anterior commissure and the septum are not established, while the continuation through the capsule of the caudate nucleus (underneath the area of Broca) with the stria Lancisii is quite plain.



lost her husband, 1886. She was a singular person, excessively neat; "nothing suited her."

In 1886 a runaway team dashed her head against the pavement, broke her false teeth to bits in her mouth, but the skull did not seem fractured. She was stunned, taken to a physician's office, but recovered and there was only *occasionally a whistling or whirling around sensation* which was followed by *staggering and losing consciousness*, further occasional *double vision* when looking towards the left. There were also *slight headaches* which she "could throw off by making a few passes over her head." In the course of years she became *more emotional, restless and sleepless*, careless with lamps and lights, and she often declared she couldn't endure the people with whom she lived and claimed they didn't use her well. She was brought to the hospital under the impression that she was to consult an oculist, and became very violent, screamed and kicked the nurses when she found out that she was deceived.

On admission, September 22, 1896, the patient was 4 feet 10½ inches and weighed 82 lbs.; thin, but strong; she was *deaf in the right ear*, had normal reflexes, normal pupils and no evidence of organic lesions. At intervals of several months she would have one or several *convulsions*, and after this be more emotional and dazed. Her memory proved to be *much weakened*. March, 1897, she said she was slowly improving, and that two weeks ago she had *come to herself* and looked around and found herself in a strange place, and didn't know how she had been taken from home, and scolds for being here. She claims she never had any fits before she came here, and only used to faint easily at home.

After September, 1897, she became considerably confused with *loss of memory increasing*. She often asked for something to put her out of the way; she had to stay in bed often, was *frequently mute and sulky*, didn't know where she was. *At other times* she would be exhausted and rather *silly*, would jump out of bed and dance.

After April, 1898, she frequently talked of her personal appearance, scolded for not having her teeth and clothes, was easily puzzled. At the sight of another patient's name on a handkerchief she said, "I thought my name was F. M., but here it is H. M. I can't remember anything." She often talked of her looks. "I looked so dear; I always looked so nice; I had false teeth and little tweezers to pull these hairs out. I curled my hair and had such nice clothes." When she was not irritable, she usually smiled pleasantly when spoken to. At times there was a *suspicion of hallucination*. On October 22, 1898, she said she heard voices ask her where she is and what her name is, and on December 30 she said in a whining tone, "They have wronged me. They say they are going to hang me." Then she would go over to her terrible looks, etc. Then she would speak of the runaway, how her brain was injured, or scold, "This is a devil's den; they are all



devils. You have taken my teeth, my gold watch and rings and all my good clothes," intermingled with very profane expressions. Often, after a convulsion, she would pick and tear the clothes, try to find the teeth under the blankets, throw her shoes out of the window. "I have never done any wrong, and it isn't right to keep me here." She *was not oriented*. "The year is 1850, the place Braggville, Mass." After a series of 12 convulsions, on August 24, 1899, she remained permanently in bed. "Ashamed of herself, of her looks," more and more untidy, destroying clothing, etc.

April 3, 1900, she had status epilepticus, in which she fell. It was followed by coma lasting until she died April 5.

*Autopsy* was made one hour post mortem. There were *greenish bruises over the right eye*. The sutures of the skull well preserved. On the *right frontal bone* there were in front of the coronal suture *two parallel shallow superficial depressions*, one 3 and the other 1 cm. (from vessels?). The dura is firmly adherent, especially over the angle of the right frontal bone close to the bregma and very uneven. On the inside of either frontal bone there are a number of depressions similar to those produced from Pacchionian granulations, and in two of them oval, pea-sized hyperostoses. The vascular sulci are rather deep and ragged. The diploë fairly abundant in the center of the bone. The *dura* is firm, rather loose on the left side; *on the right* there is in the posterior part of the convexity *a broad clot*, extending as far forward as the bregma and partly in a very thin layer. Over the frontal region there are a very few independent *bloody membranes*, also a few on the inside of the left dura—*evidence of the effect of the fall in the last epileptic episode*.

*On the left* there extends from 8 cm. behind the bregma *along the attachment of the falx a calcareous plate* very uneven on the inside, 5 cm. long and 3 broad, and just in front of this another piece begins 12 cm. long and at the broadest 4 cm. This plate follows the falx and extends forward between the frontal lobes as an independent spur .4 cm. long and 1 cm. in thickness tapering into a free point. The dura of the whole right middle fossa and part of the anterior fossa and of the clivus is thinly lined with blood clot. The brain weighs 1150 g. The *right temporal lobe at its tip is covered with a red membrane*. The two frontal lobes are separated by the spur. The pia of the frontal lobes is thickened and whitish and has marked Pacchionian granulations farther back. The cranial nerves are equal with perhaps the exception of the left 6th nerve, which appears a little thinner than the right one. (Intracranial hardening of the brain with 10 per cent formalin.)

Further there are obliteration of the left pleura, œdema of the right lung, arteriosclerosis of the coronaries, mitral valve, and ascending aorta; a double ureter in the left kidney and uterine fibroids.

*Summary.*—Family with insanity. Cranial injury at 48 followed by

There is also a frequent reference to *general paralysis* having developed on traumatic ground. This is pardonable in a period in which there is still uncertainty concerning what the term general paralysis is meant to cover. If we class there all the cases with dementia and forgetfulness and some neurological symptoms of tremor and speech defect, without any regard for the clinical development and the lesions found and for the etiology, there is no ground for a discussion. If, however, we leave the ground of the eighties of the last century, when great efforts were made by some writers to distinguish the general paralysis of metasyphilitic origin as pseudoparalysis from the supposed legitimate general paralysis of the over-worked business-man; and if we mind the teachings of Hirschl and others, and also the anatomical definitions of general paralysis, we shall probably be more critical concerning the relation of general paralysis and traumatic dementia. A traumatism does not make a previously syphilitic person immune against general paralysis, but is apt to add to the chances of precipitating the cerebral reaction; on the other hand, a traumatism will hardly be able to bring about the paralytic brain-changes without previous syphilis. I regret to say that the two cases in which there was a suspicion of general paralysis were not especially well observed clinically. The facts are briefly as follows:

Case 6. J. O'C. Born 1849. Family history, unknown. Personal history unknown, beyond "intemperance and traumatism."

Admitted March 11, 1895, from Deer Island, as demented, filthy, destructive of clothing, dull, incoherent, untidy; he thinks the Island is Roxbury, that he is in a business block, engaged to work, while he is a prisoner at the House of Industry, pardoned for insanity. April 27, 1896, 12 convulsions, beginning with the left side of the face and extending over the left side of the body, followed by a dazed condition for several days. November, 1896, tongue to the right, knee jerks increased, anæsthesia to pain on the outside of the leg. Considerable gaining of flesh. Apathetic torpor. Death, October 1, 1897, after three convulsions.

*Autopsy* two hours post mortem. Skull 500 g. with depression in the middle of the forehead with adhesion to dura. No lesions of general paralysis. A small focus of softening in the right frontal lobe close to the rostrum; no granulations of 4th ventricle; basal arteries and nerves normal. Acute dilatation of the heart. Caseous encapsulated tubercles of both lungs, slightly granular kidney, œdema of both lower extremities.

*Summary.*—According to the commitment paper, alcoholism and traumatism. Deterioration in the workhouse. Epilepsy followed by incoherent dementia with feeble occupation delirium and later apathetic torpor. Depressed scar of forehead. Small focus of the median side of the right frontal lobe underneath the rostrum. None of the lesions of general paralysis.

Case 7. M. R. Born 1836. Intemperate up to five years ago, probably fracture of the skull 1880, with hemorrhage from the ears, unconscious, and for several days disoriented. After a short period of work, he complained of heart disease, inability to work, stayed around the house for the past 14 years, very irritable, spitting much; for the last six years preparing his food himself on account of fear of poisoning; suspicious and afraid to leave the yard; restless at night and drowsy during the day; inclined to go into the cellar in his night clothes at night; very noisy at times.

*Admission, February 6, 1898,* with fair appreciation of persons and the immediate surroundings, deficient time orientation (1897 or 1798); partial insight. He says he is cross, hard to get along with; his memory is poor for recent events, somewhat better for the past. Mathematical tests correct. He regrets not being able to control himself. The right pupil is wider than the left; the knee jerks brisk; the gait feeble, tottering. There is mitral insufficiency with dilatation; advanced arteriosclerosis. In May he had an episode of talking about gold, became restless, smashed windows. Later he became dull, stupid, hardly nodding or whispering "yes" or "no," vegetating for months in bed.

*Autopsy* one hour post mortem. Decubitus. Heart 410 g. with insufficiency of aorta and mitral; slightly cystic kidneys. Atheroma of cerebral blood vessels; thickening of pia; brain, weight 1485. On the right side, peculiar gouged defects covered with gelatinous thickened pia of L. T.3 and T.2 from near the tip to the level of the bifurcation of the Sylvian fissure and encroaching on T.1 for 16 mm. in its anterior 4th. A similar depression of 8x12 mm. in the right orbital surface just outside of the anterior outer limb of the H figure. Another hole 6x8 mm. on the orbital surface at the end of the spur of the Sylvian fissure and a small one just outside of the middle spur. On the gyrus behind the vertical spur a depression slightly invading the foot of R C A, 25x16 mm. Another small one in the limb forming lower lip of the inferior frontal sulcus, and one small erosion 2x4 mm. in the middle of the posterior central convolution. Two small ones near the foot of the postcentral sulcus involving both borders.

On the left side: Only shallow puckerings and depressions in the anterior half of T.2 and T.3 and less marked ones in the extension of T.2 towards the angular gyrus. *The depressions are as if produced by arachnoid cysts,* but the substance of the lesion is intensely gray. Dense granulation of the lateral ventricle round the foramen of Monro and

especially between the choroid plexus and the stria cornea. The roof of the lateral ventricle shows numerous transverse depressions, more marked on the right than on the left.

No special vascular changes and no excessive gliosis. Residuals of haematin. A description of the serial sections will be given elsewhere.

*Summary.*—Cranial injury, change of character, paranoic development, commitment in the 14th year. Senile arteriosclerosis. Loss of memory. Peculiar outbreak of violence, followed by pseudo-stupor. Very extensive superficial traumatic defects of both hemispheres, especially at the base of the temporal and frontal lobes.

The question in such cases is: Do these conditions necessarily remain stationary or can they become progressive, i. e., go beyond the mere repair of the initial damage?

This is a very difficult point. Even the very first effects are difficult to explain. A certain portion of damage in the nervous tissue must be direct contusion; another might perhaps find readjustment were it not for the hemorrhages, and the traumatic oedema; and we may seriously ask whether this swelling as such does not aggravate certain subtle changes by making the nutrition difficult. The combined effect is a certain degree of necrosis and of temporary malnutrition, and subsequent repair as far as possible. The death of nerve-cells seems to be irreparable. To what extent parts of nerve-cells are replaced in the central nervous system, we do not know; and after the Marchi method ceases to be available, i. e., about 4–6 months after an injury, the only available measure of actual damage is furnished by rather coarse scars and so-called secondary degeneration connected with them.

Among the numerous general paralytics of whom I have autopsies, I have not one with actual evidence of even traumatic auxiliary lesions and but very few with a history of injury; a result which coincides with Kaplan's (*Allg. Ztschr. f. Psych.*, Vol. 56, p. 292.) There are, however, in the literature undoubted cases in which the paralytic development was precipitated by injury. It would seem that those cases presuppose a previous syphilitic infection. It is well to leave the question open and to collect carefully the facts concerning the cases of traumatic dementia allied to general paralysis.

The case published by Frost (*American Journal of Insanity*, April, 1903), is probably one of the clearest illustrations of progressive secondary changes many years after a very extensive



brain injury. This case also shows the clinical difference from general paralysis (see page 175).

There remains the question of *tumor formation connected with traumatism*. This is a very difficult problem. Among the cases which I have observed there are several which refer to a traumatism, in some way related to subsequently manifest tumors in two localities—the region of the chiasma<sup>2</sup> and the corpus callosum. In the last named group it was difficult to say whether the fall was not the first symptom. One of the two patients, *Case 8*, fell backward and developed marked amnesia and a semi delirious condition with the characteristics of a Korsakow psychosis, later hemianopsia and finally central blindness—tumor of the splenium of the corpus callosum with a spur into each occipital horn.

*Case 9.* The second case, a woman of 62, worked efficiently up to January 23, 1903, when she fell on the ice, was found unconscious, paralyzed on both sides; sphincters relaxed. She recognized her friends on the first day but not later. The temperature rose the second day but subsided in 24 hours. The patient became more and more delirious, she would laugh, cry, twist her clothes, try to throw herself out of her chair in apparent fright and was very restless. She did not answer intelligently; occasionally the family would catch a word. On admission February 16, stupor with Cheyne-Stokes respiration, right knee jerks exaggerated, suspicion of Babinski reflex on the right; slight drooping of left corner of the mouth, tendency of eye-balls to roll about and to rotate to the right side when the eyes are open. No spontaneous motion on the right side, although there is considerable strength. Difficulty in swallowing, slight tremor of the right hand when elevated. Left arm jerk exaggerated, right knee jerk exaggerated. Both big toes, in extreme extension, became more so on stimulation of soles.

As a rule the patient was totally irresponsive, at times brighter, so that on February 21, she showed a tendency to extend the left hand, shook hands with the right hand and mumbled on request, even held a pad and pencil correctly without succeeding in writing. February 25, right hemianopsia was noticed February 27, parotitis on the left.

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<sup>2</sup> See the case reported by me in the New York Neurological Society J. of N. & M. Dis., Vol. 30, p. 216. A case of fall on the head in diving, development of a tumor severing the chiasma, and affecting the motor fifth; later continuous oozing of cerebrospinal fluid from the nose. Adler (Ueber das Auftreten von Hirngeschwülsten nach Kopfverletzungen. Arch. f. Unfallheilkunde, Vol. II), has collected 118 cases of brain tumors of probably traumatic origin.



inability to swallow, double Babinski; right knee jerk exaggerated. Rise of temperature and pulse. Death from lobar pneumonia. Tumor of the anterior two-thirds of the corpus callosum invading especially the left hemisphere.

Turning to the VARIETIES OF FUNCTIONAL EFFECTS of cranial traumatism, we get a very good illustration of the *multiplicity of effects of one kind of cause in the constellations of pathology*.

The first question is: Has the *localization* of the injury as such anything to do with the production of the symptoms, i. e., Have we any knowledge of mental disorders which would depend on clean-cut defects of the brain?

This question is answered with the problem of the so-called organic psychoses from focal lesions. The answer is practically negative for small lesions. Even in aphasias—the type of affection which is apt to cut most deeply into the mental functions—we do not expect with necessity a disorder which makes the patient *non compos mentis*, except where the lesion is very extensive and interferes chiefly with the so-called leading functions: that of the understanding of meanings and of assimilation and elaboration of speech and signs.

This experience is fully corroborated by brain surgery. To my knowledge mental derangement is rarely put down as a primary danger to be considered, and Dr. W. W. Keen kindly informs me that in none of his cases has insanity followed.

Nevertheless we must refer to the account given by Phelps who says (*Traumatic Injuries of the Brain and its Membranes*, p. 129, etc.):

“An examination in detail of the many cases in which laceration has occurred in different regions of the brain, affords some reason to believe that purely intellectual and emotional disorders can be directly connected with the localization of the injury in a part even more restricted than might be supposed from the results of physiological experiment.” He refers to the left frontal lobe. He can use 28 out of 225 cases.

The lesions of the *right frontal lobe* (7 cases) gave in one case violent delirium on the second day, in two convulsions followed by unconsciousness and delirium, in one meningitis. In one a previous melancholia continued. In two no mental symptoms.

While in the seven cases mentioned “positive direct mental symptoms” were observed in “none” (a summing up difficult to understand), the lesions of the *left frontal lobe* were all accompanied by some men-

tal aberration or deficiency apart from the stupor, and in ten cases with lesions of both frontal lobes, eight showed specific mental disturbance.

Phelps (p. 135) even distinguishes subcortical and cortical effects; the former "abrogation of mental power, rather than aberration in its manifestations, the patient's condition being sluggish and apathetic. In the cortical lacerations, in place of apparent defaults of intelligence there were perverted memory, lack of attention and control, incoherence, delusions, or the stupor which comes from confusion rather than paucity of ideas; the mind was alert to external impressions, though they were not always rightly comprehended. These distinctions which are general are by no means absolute. ....

"The converse proposition that laceration of the left frontal lobe is the sole traumatic lesion which occasions a direct loss of or derangement of intellectual function, is, so far as can be judged from a study of the same series of cases, only a little less absolutely true. In the 225 autopsies, death had been preceded by such deficiency or derangement in four instances in which the injury was not disclosed." In one a hysterical melancholia preceded the injury of the parietal lobe. "In each of the other three, mental decadence was evident; in two, general hyperæmia and œdema were excessive, and in the third a large localized subarachnoid serous effusion compressed the frontal lobes." "There were no instances in which a laceration of any other cerebral region was attended by characteristic mental changes."

Further, of 110 pistol shot wounds collected by Phelps from English and American literature, 58 involved the frontal lobes, 26 the right, 24 the left, and 8 both. Not one of the 26 cases of injury to the right frontal lobe showed any symptom of mental or emotional disturbance which is characteristic of general contusion. In eight of the thirty-two cases involving the left lobe, the condition was obscured; several other histories were defective; some cases showed aphasia (mostly with injury in the posterior part). In some cases no mental impairment followed. Details of positive cases are not offered.

From 130 cases of wound of the frontal lobes, Phelps concluded that the right frontal lobe gives no mental reaction as such, whereas in nearly every instance in which consciousness was retained or regained and the mental faculties were not perverted by general delirium, laceration involving the left lobe was attended by default of intellectual control, and that the lesion was usually of the anterior region and implicated its inferior surface. Subcortical disintegration leads rather to defect symptoms, superficial laceration to aberration. This argument is worth being tested further.

The material furnished is hardly quite convincing yet.

Probably the best examined case of traumatic mental defect is that of Voit (see page 171), concerning whose aphasia there is

quite a literature available. In this case there was, however, no real delirium or insanity, and the patient was studied clinically only. Cases like the *famous crow-bar case* have been used for a demonstration of a connection between changes of character and lesions of the frontal lobe. It is difficult to say with how much justification.

#### THE CLINICAL VARIETIES OF TRAUMATIC INSANITY.

The *immediate result of a cranial injury* is usually that the person is more or less completely stunned, or at least dazed. At times the coma sets in after a brief latent interval, especially in meningeal hemorrhage, or after several days, as in Bollinger's Spätapoplexie (Festschrift f. Virchow, Vol. II, p. 150). The awakening from the coma may then lead through a brief period of partial consciousness or actual delirium. In but few cases the active delirious traits exceed mere sopor, i. e., a dreamy condition from which the patient can be aroused only for a few moments, with difficulty of grasp on the situation. In the cases extending over several weeks or more, and showing plain traits of mental derangement, we recognize clinically the cases of *primary traumatic insanity*.<sup>3</sup> Among these we are able to distinguish partly febrile affections from other more directly psychic disorders.

Case 10. A case of partly febrile traumatic delirium was admitted from the Worcester City Hospital. A young woman of doubtful habits had shot herself in the right temple, October 6, 1898. She did not lose consciousness, directed a note to her lover, and was taken to the City Hospital. Under ether the bullet was probed for. When she awoke she was delirious and remained so until October 27. The temperature was 101° during the first three days, then normal with an occasional evening rise to 100°. The patient was "noisy, disturbed all the patients, was restless, attempted suicide twice, and required restraint." On admission, October 21, the patient's temperature was 102°; it was normal again October 23. The right eye was slightly protruding and showed chemosis, rupture of the retina ("Choroiditis hemorrhagica"); paralysis of the muscles of the eye (especially for horizontal movement), and of the right frontal muscle. Cystitis. Mild delirium. The patient appeared bright, but was really much confused. When she would awake she would believe herself at home, or at the city hospital,

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<sup>3</sup>Leaving to the medico-legal field the distinction raised by Dr. Pearce Bailey when he called such a case "one of protracted delirium rather than insanity."

and only recognize the place when looking down to the lake (which she knew well). She greeted the physicians, apologized that there were not enough chairs, called the nurse to bring some. She repeated the names of the physicians correctly, but in a few minutes she substituted other names. She gave an account of having had headache especially over the right side of the forehead and extending back towards the mastoid prominence. "I felt as though the brain was chopped into little pieces." She realized the blindness of the right eye while it was examined, but otherwise did not think of it in her confusion. She interspersed irrelevant remarks in her account and elaborated on them. Thus she said: She went to the city hospital for an apple and enlarged on the story without being interrupted by casual remarks she made. Then she added, she must have been crazy to have gone to the city hospital for an apple. Since being at the city hospital she could not get certain events out of her head, every morning on awakening she believed she was standing under the elm tree in Salem Square; or she felt that the garret of her home was cut up into little rooms like the one she was in. She remembers entire dream-episodes and tells them very vividly. "I remember being in a hack and going somewhere, out to Westboro. You know where W. is, don't you? I thought I was with Dr. —. You know I just stretched right out and put my feet on the other seat and leaned on his shoulder. I took one hand and put it around me like this and the other like this; then I looked up into his face and kissed him, oh, lots of times and said, you are a dear, good fellow, you are so sweet that I should think all of the girls would fall in love with you. Then, you know, he said, 'Well, that is their privilege.' 'Well, you will love me, won't you?' 'Seeing that you are an invalid and I am a doctor, I guess there will be no objection,' he said. You know, I saw a bottle of wine on the other seat, so high and the neck so long, and I said: 'What's that?' He said, 'a bottle of wine.' I said 'let's open it'; but he said, 'no, we might get too jolly.' Any way, he did not open it. Well, I went out to Westboro and there I got all mixed up and I then lost him; so I borrowed a bicycle and rode home."

The patient was restless and tried to get out of bed; but within three or four days she became quite rational, but kept a defective memory of the three weeks of delirium. Since then she has had several episodes of constitutional depression with one re-admission.

*Summary.*—A delirium after a shot in the right temple, with restlessness, dreamy fabrications, difficulty of orientation and in remembering names, with a few subfebrile rises of temperature. Recovery in three weeks.

The following two cases are *free from febrile complications, but similarly marked with hazy grasp on the situation, prevalence of dreamy productiveness and tendency to fabrications.*



Case 11. W. J. D. Of American parentage; inspector; single. Born 1868 or 1872, with negative personal history, beyond a scar on the penis concerning which no reliable facts were obtained.

November 23, 1898, the patient was supposed to have fallen from a passenger train, he was found beside the track, and admitted to the city hospital, with scalp injuries but no injury to the skull. With the exception of a very few lucid intervals he was restless, irresponsible in words and actions, but easily managed until December 2, when he became violent, threatened, struck the nurses, etc.

On admission December 3, 1898, he was restless, squirming in bed, hunting for something he does not know what among the bed clothes, hazy and fabricating. He says he is in the "Jacksonville hospital"—"the surgeon just came in"—"Oh, I just came from Tampa." He feels "kind of mixed up"; did not remember where he was in the morning (city hospital), made incoherent remarks about the treatment the doctors are giving him and what to bathe his head with; he claimed he received his wounds in battle, that they were "sabre cuts." The left shoulder had a large bruise, the forehead a lineal cut 4 inches long, sutured, a large, gaping wound in the parieto-occipital region with swollen margins and dirty; it is disinfected and dressed; pupils dilated, the left perhaps slightly larger; tongue median; countenance flushed; slight weakness of the left orbicularis, facial, arm and leg muscles, increased reflexes (the left knee jerks slightly more than the right); left plantar reflex absent, the right slight; traumatic difficulty of motion of the right arm; the patient was restrained. December 4, he again admitted he was all mixed up, points to the head and says: "If a little alcohol dipped in glue were only put there (referring to wound), it would cool it off and be better. Can't you pry that open and let that weight off my head?" Then he again talked of Tampa, Jacksonville, gave the address of a relative, yelled and called after the physicians, whistling for them to return, but merely rambled: "What kind of progress do you get out of that?" Out of what? "Oh, outdoors," "I came here some time ago, oh, five weeks ago; I came in through the entrance above, I came from Brockton." What place is this? "Now you have got me mixed up on that." Later said Worcester. "I was building a road there, a street railroad; I came here Thanksgiving day. I went to a hospital in Brockton after I was married." (The patient is single.) How did you get here? "I traveled around by a fast mail express." Has anybody been here to see you? "One man came here to see me, Mr. —, Superintendent of the Brockton Street Railroad." When did he come here—what did they do to you first? "The Morton Society came to see me; they wanted to treat me. This building is a State Society for treatment of ailments." December 6, he said it was *November 19*; he had been shown the calendar in the morning and then forgotten the date. He gives an

account of two attacks—gonorrhoea and chancre three years ago which broke out on the shin four months later.

The patient's gait is odd, the feet are wide apart as if with an effort to keep the head still. He cannot raise the left leg as well as the right.

December 10, the patient claims he is in Worcester, the proprietor of this institution told him, it is supposed to be a hotel—"I don't know whether you would exactly call it a hotel. Well, according to conditions it is run by hospital people; it is owned and operated under hospital conditions." He knows that it is December. The day? "I'll be damned if I do. Let me see, to-day must be about Wednesday; if I came here on Saturday this must be Wednesday. The clerk told me I came on Saturday." He thinks he is getting nearer his senses than he was for a while—"my head was hurt so bad that it was enough to put me out of my head." He could hardly believe that he had been here a week. His memory poor for what he had for dinner, fair concerning the examination he had gone through. He *fabricates* that he went upstairs to the doctor's office in the afternoon, but slept in the forenoon. At one time he remembered that the doctor had an assistant, but then again said when asked who he thought the physician was—"Upon close inquiry, I would imagine you are a representative of the company" (for which he worked). He says he got hurt. Where? "Well, here; no, well, in Boston." What place is this? "Webster. I got all mixed up but I know what I did last." Memory for remote events is probably good.

December 14, patient talks coherently, acts rationally, knew where he got hurt;—he was standing on the lower step of a moving train, people were standing on the higher steps, and he was either pushed off or fell off; he had been drinking a little that night at six, the accident happened at eight. He claimed to have come to his senses December 10. December 17, the right knee jerk and right elbow reflex seemed slightly increased, the reflexes on the left were normal. There was considerable coarse tremor of the left hand; no Romberg, writing or reading defect; no speech defect; no hemianopsia; the right pupil a little larger than the left; the gait a trifle clumsy; mental condition quiet and composed.

In the night of December 19, he awoke about 12:30, left the bed; it seemed to him as though he and the night-watch were playing school games. "Why, I was to represent a character that had hand-cuffs on, and there were two girls, a white and a black girl, who were there, etc."; a moment later he claimed he had said nothing about school games. He was born in 1871—married, 23 years old in 1885, four years ago, but this is 1898, etc. Again on December 21, he states he was born 1871; 28 years old,—no 27; married at 23 in 1885—"85 and 4 are 89." His wife's name is Eliza; her maiden name T. She lives in St. Louis. December 23, with his usual easy self-confidence and delib-

erate glibness gives an account of the scar of the penis—an uncle of his, a fireman, had gone to fires with him as a boy; he saw him slide down telegraph poles, and one day he tried it for practice, ran a sliver in which gave him a lot of trouble before it got well. He told his father that he had told the doctors he was married because he was so mad over being kept here and he wanted to fool them. Asked half an hour later, he said he was born 1871; married at 23, 1885; the wife lived in St. Louis—"I told you her first name was Eliza; it's Alam, Alam Tinsley." By whom married? "By a traveling doctor (pause)—no, a traveling minister, I mean," and he gives a long account of his wife with whom he boarded before marriage, her parents, etc. When he was told of his statement concerning the fooling of the doctors, he calmly denied it, and said, "it doesn't make any difference."

*Summary.*—Fall from a train. Large bruise on the left shoulder, large cuts on forehead and occipitoparietal region; no obvious fracture of the skull; (variable) differences of tendon reflexes and of pupils, clumsy gait, delirium with profuse fabrications, but temporary partial grasp of the situation for three weeks. Subsequently tendency to prevarications and inconsistencies. Total duration of the abnormal mental state two months. The patient took months to recover from difficulty of remembering things and from headaches and dizzy spells. He has been quite well since January, 1901, when a tumor was removed from the left temple developed around a splinter of bone.

Case 12. S. J., alias C. S. A very hazy previous history; probably born 1862. Married and separated; disinclined to give any correct previous record, claims he was disowned by his family. The lady with whom he boarded five weeks describes him as a very strange man, talking continually against women, against his father and mother, who whipped him and drove him from home. He claimed to come from England. Spoke of being married three times. He did not drink during that period. His wife, Mrs. C. S., said that she married him February 25, 1883; he worked then at painting; her husband sent her home two months later; he suddenly appeared March 1, 1884, claimed the baby, three months old, and she did not hear of him again until she was informed of the accident. She knew of no previous marriage, she never saw him drunk, but he was very nervous, and acted as if hunted; he changed his places very often. The wife saw the patient to identify him, but not to speak to him.

The patient was admitted to the Worcester City Hospital October 8, 1897, with a scalp wound, having fallen from a train and struck his head on the rail; profuse hemorrhage from the right ear continued 48 hours; semi-conscious condition followed by a state in which he answered questions irrationally. He urged to go home, tried to escape, and was committed to the Worcester Insane Hospital, where he was confined to the bed and restrained because he tried to pull the bed to pieces, wandered out into the ward, saying his home was right



across the way; he appeared completely disoriented and irrelevant, was very voluble in conversation and showed a slight exhilaration and tendency to be glib; extreme inconsistency. He listens attentively and if he doesn't understand the question he will ask to have it repeated; then he answers as if it were perfectly correct, but wanders off to a totally different subject. He appeared quiet. The following conversation is a good instance:

What is your name? "Charles McGaverick." What was it before? "The same as it is now." What is it now? "Johnnie McGaverick." What is your father's name? "His is not the same as mine, he calls his the same M-o-v-e-r-i-c-McGaverick." How old are you? "Most 38." How old were you a year ago? "Just the same, I want called the same." What? "No, I don't think there was then. It was too far ago. Because I was away too long." What? "It was a long time before that." What? "They would call me McHolden, they call it." What is your name now? "McHolden." What? "I can't think myself, I didn't work for him myself, but I guess Mike is different now to what he was. I think he has got another place." What did you say? "This Millen I spoke of, I think his name is now changed to McMahon." Did you ever drink? "No, I have not drunk for years, no I never drank." What did you drink? "Beer, ale and such stuff, but it is a good while since I had any at all." "Say, will you take this ticket home? If you can give him that from me to take me home I will pay you for it. I came here on your strength, of course. Won't that do? I'll send you my certificates, as it might be called all right." Did you ever go with any women? "I never had any?" Why? "Because I never had any what I say is right, is right, as far as I am concerned." "Well will I get yours when I go down? What ever you say I will bring it to you and bring it all right. Well when that comes back you are paid all right." How did you hurt your head? "Oh—that was done by the railroad." How? "Because the road got it in that way. The railroad did it by doing it that way or in other words that is to say by working." How old are you? "About 47." How did you hurt your head? "Oh that was done over bad looking women. As soon as ever I get loose at all, it was done by women. All to be different." How did you hurt your head? "Well all about the same. Why it got bruised. It might have been to-day and to-morrow, the same things." What town are you in? "In Fitchburg and Worcester road. It is on the road that runs from Ayer Junction to Ayer Junction and all the way down there." What town are you in now? "This is Northampton ain't it? O, I thought it was." Have you any headache? "It must be six miles of north the headache." Do you ever see anybody in your room at night? "I can't tell, till I go out at night and then I might tell. Who orders that list made out?" He now commenced to fumble around his shirt and said he was looking to see if the money was there—"No, by Judas, there ain't any that I can see." What did you



want money for? "I wanted to know here it is. If I had the money so that I could put it down, I should know what to do with it." "Can I come? Can I come here or to the office." What is your name? "Well it's my name." What is it? "Well it is not much." What? "If you want to pay for it, I will be different." What is your name? "I asked you if you would let me buy my name off"—and so on in a most disconnected, rambling way, at the same time with a plausible and affable air.

He has a scar on the right side of the head over which he placed his hand several times gently. He twice stated that it was done by a railroad train, at another time he "fell from a roof," and still again that it was caused by "bad looking women." Absolutely no insight. "I am all right only I want to go home." Cannot remember when he came here, where he has been and "just forgets" his age.

He admits his head is not right. Up to November 12, his speech was nasal and had a sing-song character. By November 13, he began to show orientation and much improvement in memory for recent events, but he maintained a great tendency to fabricate. He was never at a loss for well chosen words to cover up his ignorance. He seemed to be unable to remember a name for even a minute. On November 13, he said, "I want to ask your forgiveness for what I said the other day. The men around me said I said something wrong to you. I am sorry as I do not want to do anything wrong" (his voice trembled). What was it? I don't just know but if I did I am sorry. My head was wrong, it felt mixed here" (pointing to forehead). Though he had often asked to go to his father, when asked now, he said—"No I have found out since I have been thinking that I don't belong to him; I have not been with him for many years,—he needn't come unless he wants to, I don't think he will come here." He gives an account of his admission November 17, with ease fabricating about the men who brought him, the time and the place. "The two men came with me and went to bed near me; the next morning the two men got up and went off and I have not seen them since. I came in the hospital and sat down on a settee, until about 10 o'clock P. M., when we went to bed," etc. Even on November 22, he dodged the question about orientation; repeats the question or some catch word, and with a rising inflection on the last word says, "well *now* I don't just know, sir, it seems quite a good kind of place—why—yes, sir, it is 1897 I guess." What place is this? "Yes, sir, well I don't know only what I have been told; they say Worcester is somewhere near here," etc.

From January, he was completely oriented and with perfect memory of the remote past, with amnesia for the events since the accident and still with a tendency to make up the gaps with much fabrication. From February 2, he was perfectly clear, but showed a tendency to conceal, told the physician he considered his past none of his business, but gave an account pretending to make a clean breast of the whole

matter. Statements casually made during the psychosis and known to be true are positively denied by him, unless he knows that we have obtained the facts.

He escaped February 14, but returned February 18, on the advice of his employers, and was discharged May 23, 1898, with perfect insight and able to resume his work.

*Physically* he has shown a small scab on the right parietal eminence, which healed and was no longer painful. Defective hearing on the right; brisk reflexes; weakness in flexors and extensors of the left wrist. A transitory peculiarly limited anæsthesia in the left metatarsal region, difficulty of rotating the foot and slight exaggeration of the left Achilles reflex was noticed in January, but disappeared in a few days.

September 16, 1898, the patient again fell from a car and sustained a fatal injury.

The autopsy showed infiltration of the scalp with blood over the right parietal bone. A large hemorrhage under the dura on the left side. Hemorrhagic softening of the under surface of the left frontal and the right temporo-sphenoidal lobe; the middle fossa filled with blood; hemorrhage in the pia over the under surface of the left cerebellar hemisphere. A large irregular fracture of the base. The vestiges of the first injury covered up.

*Summary.*—Constitutional peculiarity. Fracture of the base; coma of 48 hours, then delirium, attempts to escape; commitment. Delirium with disorientation for five weeks, with peculiarly inconsistent fabrications, and a condition reminding one of Ganser's symptom-complex; the latter continued for two months. Amnesia for the period. Recovery. Death from a second fracture one year later.

The next case, a young alcoholic, after a blow on the head which dazed him, for two months was in a state of *haziness with tendency to fabrications*. He showed a *very poor grasp on facts* ("stripes of flag up and down and stars in the middle"), *very variable and contradictory statements of time, poor calculation, marked amnesia* for the last few weeks and *free fabrications* to fill the gaps. Great improvement after four months.

Case 13. T. J. H. Family history, negative. Patient was a poor scholar, but later a good worker in the sewer department of the city, fond of company. Drinking for the past 8 or 9 years. Two months before commitment, at the age of 25, the patient drank excessively. He received a blow on the head while riding on the top of a car. He was much dazed but returned to Worcester with the help of two men, who left him at his home. He stayed in bed, weak, disoriented (his home—"a boarding house"). He took a lamp to look for whiskey in the room, claimed his brother had a game rooster. There is no excitement, no evidence of hallucinations, but a great indifference and tendency to fabrication.

On admission he gave a fair account of his craving for rum, no horrors, but weakness and slight nervousness, the head "a little mite mixed up," the date (July 24, 1892), is 1893. He is somewhat restless, begging for release. At 9 A. M. he says it is afternoon. He has had "two meals," and he makes up "what he had"; "I was in here twice to-day and the day before yesterday; this afternoon I came but I was in here this morning." He claims his former chum slept with him a few nights ago. He said he was 28 years old.

The patient complains of occasional frontal headaches, cannot differentiate odors on the right; reflexes exaggerated; slight ankle clonus; considerable tremor, and slight incoordination, slight defect of speech and writing. His memory is fair (for three numbers repeated in 10, 15, 20 and 30 seconds), but easily disconcerted. *Memory pictures* hazy (U. S. flag,—stripes up and down, and stars in the middle).

July 28, in the night he had a night-mare, shouted that some one was after him to kill him. He forgot it the next morning. A careful mental test showed: A very poor grasp on facts, very variable and contradictory statements of time, ages of friends, his own age (23-28), calculation very poor; marked amnesia for the last three weeks and rich fabrication to fill the gaps: "I have been out there and down to the city, etc." He began to do some work on the ward. The memory was variable, better for more remote happenings. There is some insight; he begins to correct mistakes August 7, to remember the name of the physician August 11; claims he is better. Gradual improvement in two months. (But he still said *Artillery brigade* on discharge.)

We would rather say are apt to complain, because, obviously, quite a few cases recover without any trace.

The large number of cases of traumatic coma show but little immediate mental disorder except what can be accounted for by fever, alcoholism, and the inevitable haziness in the transition from coma to connected thought. Bailey (Med. News, 1903), finds that 58 per cent of the cases with fracture of the base die in the coma or the delirium following it, or perhaps, after a lucid interval, from meningitis. Among his cases only one old gentleman showed a "protracted traumatic delirium," lasting several months, with impulsive tendencies and fabrications. Even in the cases of brief transition states, he gives the warning to be prepared for *sudden impulses*, such as to get out of bed, to rush out of the room, even in patients who are fairly clear most of the time.

Guder gives several types of what we here called *primary traumatic insanity*, in a table of 45 cases.

1. The typically delirious forms which accompany meningitis.

2. The delirium which forms the solution of the somnolence and which Bailey refers to. Wille saw in three of these cases states of hallucinatory excitement with violent response which pass away and leave a period of headache and various disorders of innervation. There usually is permanent defect of memory.

3. States of stupor in which the patient awakens from the coma dazed, with weak memory, irritability, irascibility, insomnia or somnolence, intolerance for alcohol, dizziness and headache, states of anxious agitation and depression, subjective auditory and visual sensations, and motor disorders. Dullness is especially characteristic.

On this ground he found simple depressive and stuporous states, and more frequently states of hallucinatory anxiety, marked disorder of the sensorium, or hallucinatory stuporous dullness with impulsive acts, which makes the patients dangerous to others and to themselves (16 cases). Hugenin saw "chronic agitated melancholias" with recovery. "Maniacal" types are usually hallucinatory delirious and range between confusion and more clearly delusional states. Memory defect is specially noted in 13 cases: a tendency to roaming and to excesses in 8; most of the cases ended in dementia, 5 cases showed recovery with subsequent relapses and even a transition into periodic and circular conditions.

From these states, which develop largely on a mechanical basis (with dullness and memory defect), Guder distinguishes others due much more to the fright—great excitement or dull brooding anxiety, depression, irascibility, or hysteria or epilepsy, usually on hereditary basis, cases in which the trauma is of no more importance than any accidental cause (menses, puberty or insults). It is perfectly obvious that the prognosis of such transition cases depends mainly on the fundamental disposition. Concerning the rôle of the trauma we shall speak later. The instances Guder mentions show the triviality of the blows as compared with the annoyance they created.

The types presented by our cases of primary traumatic insanity showed, beside an absence of manic-depressive symptoms, *a certain tendency to dream-states, fabrications of whole situations and great inconsistency of statement*, but no hallucinosis. They



were all committed owing to *impulses and restlessness*. One of the three cases showed some after-effects until a bone-splinter was removed; one recovered, but was killed by another fall a year later, and another has since shown periodic depressions which cannot be laid to the trauma.

We now pass to a group of *cases* who apparently make a good recovery from the surgical point of view, but *who suffer from after-effects*. In our analysis, we restrict ourselves largely to the symptoms of a subjective and mental character, referring to the records for the purely neurological symptoms which Dr. Bailey has thoroughly discussed in his article (Medical News, 1903).

Concerning the *general after-effects*, there is little to be added to what M. Köppen says (Arch. f. Psychiatrie, Vol. 33): "Men who have suffered from a cranial lesion in which there has been a severe damage of the brain, with or without an injury to the cranial bones, on their recovery from the immediate results complain<sup>4</sup> especially of all kinds of sensations in the head, which they describe either as pain or as pressure with feeling of crawling or dullness of the head, more or less definitely located at the point where they were hit. They frequently become dizzy, and at times even faint for a short time without any epileptic attack. Although slight attacks of dizziness may recur frequently, epilepsy with typical attacks need not develop. There is further in our patients a great irritability and nervousness. The formerly good-natured or even-tempered persons become irascible, hard to get along with: formerly conscientious fathers cease to care for their family. The irritability at times increases to excessive violence in which actions occur of which they have no remembrance; the nervous system is not only under the influence of psychic irritation but especially susceptible to the influence of alcohol or tobacco, in even small quantities.

The working capacity of our patients is very poor. It suffers variously, although such individuals often give an impression of perfect capacity; and since the morbid symptoms are essentially subjective, they always arouse doubts whether they could

<sup>4</sup> We would rather say are apt to complain, because, obviously, quite a few cases recover without any trace.

not do something at least, even if they are unable to work in a noisy shop or on a high scaffolding. It is, however, certain that the patients are very forgetful; in giving orders or doing errands they make the most incredible blunders; frequently everything must be written down. Their capacity for thought has suffered, as is sometimes shown, especially in the great slowness of thought. These patients are unable to concentrate their attention, not even in occupations which serve for mere entertainment, such as reading or playing cards. They like best to brood unoccupied; even conversation is rather obnoxious. This point is so characteristic that it gives a certain means of distinction from simulation, which as a rule does not interfere with taking part in the conversations and pleasures of the ward and playing at cards, which means as a rule too much of an effort for the brain of actual sufferers. The patients are usually advised to take light physical work, but even there they are perfectly useless. Excessive sensitiveness of their head obliges them to avoid all work which is connected with sudden jerks, bending over is especially troublesome; and there is hardly any physical work in which this can be avoided; the blood rushes to the head, headache increases, dizziness sets in and the work stops. Patients feel best when in the open air, inactive and undisturbed. There are but few objective signs, such as increase of pulse, flushing of the face, dermatographia, trembling and uncertainty in the Romberg position, such as is shown in all general nervousity. But the complaints are so exceedingly uniform that the uniformity of the subjective complaints justifies the conclusion that they are well founded.

The picture thus is briefly that of a mental weakness shown by *easy fatigue, slowness of thought, inability to keep impressions, irritability, and a great number of unpleasant sensations, before all headaches and dizziness.*

An exaggerated transitory condition of this sort seems to have been present in E. F., with the typical after-effects of trauma; a few local nervous symptoms, tinnitus, swimming sensation, pain, confusion, irritability, impulses, hazy remembrance, defective calculation.

Case 14. E. F. Family history, negative. Patient born in North Carolina, 1883; was a twin; worked as a waiter; was bright and pleasant and happy, a good worker without any pernicious habits.

September 21, 1901, the patient was struck by a car and taken to the Mass. Gen. Hospital unconscious, bleeding from nose and ears; he remained unconscious one week. Two weeks later he was taken home. At the Mass. Gen. Hospital he showed no focal symptoms. Vomited twice September 22. Bleeding from the ears stopped on the fifth day; the pulse was full and strong. September 24, restlessness was marked. The patient was drowsy, had considerable ecchymosis behind the left mastoid. Complained of feeling bad and of headache. *A slight left facial paralysis* is mentioned October 2.

On his return home he seemed somewhat confused, unable to carry on any connected conversation, had bad dreams in the night. He became very irritable and cross with the children, easily angered. He even struck his sister several times, and afterwards expressed great remorse—"he didn't know why he did it, it must have been the devil in him." Said he had peculiar feelings come over him and he couldn't help it.

June 27, 1902, he was committed. He told the physicians he heard roaring in his ears, objects appeared multiplied before him, one man looked like six, at times he gets a crazy feeling with anger and impulses.

On admission he was quiet and orderly, with full insight. He complains of being unable to remember distinctly, does not know the time correctly. On the second day he complained that he could not remember the name of the hospital. He is anxious to help, but at times complains of roaring and swimming sensations in the head, and of pain over the left parietal region; memory appears much better than the patient intimates subjectively. Calculation is very defective (partly due to deficient education). Writing and reading fair.

Physically he shows pterygium of the right eye, no hemianopsia; probable diplopia on extreme fixation towards the left or right (one man looks like two men on the side, especially to the left and outward). Slight impairment of hearing on the left; impairment of smell; reflexes equal, brisk; no ankle clonus, slight tremor of tongue; very slight incoordination in the feet and hand movements. Some mispronouncing of test sentences (ignorance). Pulse 70, slightly irregular at times. Soft systolic murmur at the apex, no enlargement of the dullness. *Amnesia* from the time of getting on the car to the time when taken home from the Mass. Gen. Hospital.

The patient improved rapidly; the attacks of roaring and swimming became rare, limited to the left ear and diplopia disappeared; irritability did not recur; self-confidence returned, and the patient was discharged well, November 22, 1902.

We shall now review the cases which developed more or less as *secondary traumatic insanity*.

A special position might be given the *cases of injury during infancy*, since in them there is apt to be a developmental disorder in addition to the constitutional element. Among Dr. Bailey's cases, I, IV, and XIII (children) developed irritability, oddity and irresponsibility; one boy especially in hot weather. In one of my cases (*case 15*), the patient when six months old was dropped by the mother when she entered a train and the result was an infantile hemiplegia with occasional epileptic attacks, irritability and deficient mental development.

The following case is an instance of the not infrequent accounts of traumatic etiology of manic-depressive insanity, not very conclusive since an uncle had been insane.

Case 16. L. G. J. The patient's uncle had been at the Hartford Retreat twice. The patient was born 1823, of Presbyterian parents in Connecticut. One hour after birth a brother two years old pierced the anterior fontanelle and some brain substance escaped; brain fever followed and ended in complete recovery. After working in a silk factory, the patient married at 23; in good health, pleasant and sociable, and without any peculiarities. She had four children, and after the birth of the first one abscess of the breast. A few years later, after some trouble with an Irish servant, the patient became sleepless; morphine made her worse; she became "raving and delirious," thought everyone was against her; spoke of poison, thought the Irish girl was the devil. She knew her husband and talked sensibly at times. In a week she improved and the attack lasted one month. A year later she again had insomnia and an attack of excitement lasting a month; all the people against her (no idea of poisoning); religious ideas were in the foreground; exhilaration and depressed periods occurred, but of late years they became a little longer. In the intervals she was quite well, and during the attacks could be cared for at home. The attack which began October 1, 1901, led to commitment and was typically manic-depressive. No deterioration. No fits. No special exciting causes.

Guder (*Die Geistesstörungen nach Kopfverletzungen*; Jena, 1886), deals extensively with these cases (pp. 5-14). To judge from the casuistics which he offers, we meet with very much the same variety of consequences in later ages; but with modifications determined by the state of growth; imbecility, change of character, epileptiform psychoses, catatonic deterioration (Schüller's case 42), circular insanity, in some instances with more or less somatic symptoms referable to the trauma or its consequences.



Of adults, we have a long series of cases. We begin with those in whom without much personal harm, the *susceptibility to febrile disorders* is very plain.

Case 17. O. D. H. Family history, very marked. Patient's grandfather alcoholic, died with alcoholico-senile dementia. An uncle and one brother insane; a cousin had chorea; the mother immoral. The patient was born 1857, of a Massachusetts Unitarian family; delicate and slender as a boy. He grew up working on a farm; little schooling; no alcoholism. Married, one child. At the age of 22 the patient was knocked against a freight car by a piece of lumber so that he hit on the right mastoid and was hit on the left fronto-parietal region. He fell unconscious, but soon was able to walk into the station. Diagnosis of *fracture of the skull*, left facial paralysis, sudden deafness of the left ear, bleeding from both ears, nose and mouth, lasting a day; internal strabismus with diplopia probably lasting six months. No headache, vomiting, difficulty of mastication, dimness of vision, difficulty with bowels and bladder, or difficulty in swallowing. In about a year he was able to do a full day's work.

At the age of 25 the patient received a blow on the epigastric region, followed a month later by gastro-intestinal disturbance lasting four or five months (vomiting, heartburn, eructations, alternating constipation and diarrhœa). It is probable that during this period he had some *abnormal experiences*: When he shut his eyes, the heavens would light up; there would be flashes of lightning; they would go up from the stomach; they would wake him up; they would seem to go through the eyes. When the flashes were not very dazzling, he thought he saw men and women in the room. Once it seemed to him as though he had been shot through the heart (he did not feel it, but heard the shot and a remark by somebody); then it was as if his mother came into the room, pulled off the sheet and someone said: "It's only a blank shot." He is not sure whether it was a nightmare; but claims this kind of attacks would come on from time to time; he seemed to see his mother with him, and the face of a ruffian saying "that's enough, that's enough." Such spells accompanied attacks later, but became rare. The patient made this statement during his convalescence at the hospital, and denied it later altogether and said he could not remember speaking of it. It must be taken with some caution.

The attack for which he was admitted to the Worcester Insane Hospital on March 24, 1897 (40 years old), began on March 3, with *laryngitis*, fever, and disturbed sleep and nocturnal sweats. This lasted about 10-14 days, during which time he worked (as shirt-cutter). He took a purgative which acted excessively and weakened him, and March 18, he went home. His wife noticed that he would not answer at times when spoken to. The patient says in his *dreams* he would have a vision of a person whom he respects a great deal (he does not

want to say who); there also seemed to be people who wanted to kill him and one person who seemed to be always with him and whose bidding he must do. When out walking he would sometimes hear some one call his name; he did not know exactly from where. He thought a ruffian pursued him. He felt terribly nervous. Early in his sickness he dreamt of seeing an intimate female friend dead 12 years; when he awoke he thought of it and it seemed singular to him; it did not worry him and he did not think much of it; two or three days later, when at work, the idea came to him that she was very sick and wanted to see him; the way he came to think of it was that in his dream he saw a letter from her which read: "I'm coming back to you." When the idea struck him he acted on it without delay or prolonged consideration, and sent a telegram to his stepmother asking whether the lady was ill and if she wanted to see him. After sending it, he thought it over and realized how foolish it was, that she was dead, etc. Then he realized that he "was a sicker man" than he thought, and sent the second telegram to his stepfather either the next evening or perhaps that same evening. He does not know why he signed his stepfather's nephew's name Arthur to it; it seemed to him as though he felt afraid and had a feeling that somehow it would be safer not to sign his own name. At any rate, from about that time he began to be afraid for himself, his wife and child. At times, however, he thought how strange it was that he should feel so. At night he would take his child in his arms and would want his wife close by him, as it seemed to him that unless he looked out for her something would happen to her, also thought that this night might be his last on earth; had a great indefinite fear, of no one in particular and of no particular danger. The stepfather persuaded him to go with him to A., but while on the car going there the patient said: "Do you see that man (pointing to another passenger), well, he is trying to get my money; I have \$100 with which to pay my interest, etc., and he is trying to get it." He refused at first to get into the carriage to go from the train to the house, saying that something was going to be done with him, but finally went. A few days later he jumped from the second story window, ran up the street, and, when overtaken, said: "Well, we will see if the whole town is going to shoot me," then to his pursuers who had overtaken him: "Now, is there going to be any trouble? go ahead and have it out; we will settle this business right here." He was easily pacified and taken back to the house. Just before admittance he had the idea that either he, his wife or his child must be sacrificed; and suddenly snatched up the child and ran out of the house; when he was stopped he again said: "We will see if the whole town is going to shoot us." Both wife and stepfather say that the patient has worked very hard the past year, worked at home an hour or two both before and after the day's work in the shop, but that he has always retired early.

March 24, 1897, to the committing physician, he said there was a person outside his bedroom door all night, waiting to shoot him; another man was under his bed trying to kill him; some terrible thing will happen to him; that he lived in constant fear of his life; that he knew what this was all about; he would be killed. He walked excitedly about the room; went to the door and would have run out; looked at the windows as if he were trying to make his escape; looked wild and was very much excited. Suspicious of everybody and everything.

Here, it has seemed as though he had done something and would be executed, as though he had eaten something poisonous. His stay of a few hours in S.1 seemed to him as though he were placed with "ruffians of the lowest class in a den of vice and gambling." Said about a Catholic patient who had a crucifix and rosary, that he thought he was probably a man who had power over him. Took the doctor's explanation readily. Said that it was "all right now, that he understood it, but that whenever he saw a man with long, peculiar instruments, etc., that he thought he was likely the one who could compel him." At times when he performs insane acts, he knows perfectly what he is doing, remembers it afterwards, but does it under "*irresistible compulsions*."

He talks freely, understands questions perfectly, in general answers intelligently, not showing marked confusion. Says that his memory is bad; is so during these attacks, that after the attacks it clears to a certain extent. Throughout the conversation memory seemed markedly impaired, the exact time of any event being unobtainable. Insight is fair. Patient says that he recognizes the hallucinations as such, also the delusions seem not at all fixed and he usually says about both of them—"It seems to me." Sleep during present attack very poor; appetite also. Manner perhaps a trifle expansive.

March 30 he inquired of the attendant the best way to get out, said he was all right and his mind clear; that he had a family and ought to be at home with them; that he was taken sick March 1, and was troublesome to his folks; that he remembered everything from then, but not who brought him here. Wanted to know if they had to get out papers to send him here.

April 7 he gave a full account, with perfect insight.

*Physically* thoracic kyphosis; prominent abdomen, palate high, narrow; left testicle atrophic from mumps; almost complete deafness of left ear; the left eye closes rather imperfectly except on special effort; the forehead wrinkles on the right side only; the lower facial is stronger on the right; platysma symmetrical; knee jerks slightly perceptible; pulse 64; transitory feeling of faintness during examination (second pulse count neglected). Discharged April 27.

Patient was well, did light work on the farm until October, 1897, and then resumed his work as shirt-cutter.

On February 20, 1898, two days after the onset of a severe cold, still at work, but under a physician's care, he said that two men were going to hypnotize him, that the same persons were persecuting him, but he refused further information; he was sleepless, and on February 23, when he sat about the house in a manner of abstraction, as if thinking, questions had to be repeated in order to attract his attention, and then he would reply as to what the matter was: "Oh, nothing." The next day he appeared brighter, tried to laugh off his fears. Thus for four days, until the 28th, he varied daily between a condition of abstraction and depression to one of better spirits, attempting to throw off the fears; the 28th he was much more fearful and silent, at which time he was admitted here.

Here it was noted that he was silent at first, but the following day he was willing to talk, asking to go home, and saying that there was no real reason for his coming here. At all times he was a little restless, pacing the ward and frequently changing seats. March 5, his manner at the time of the physical examination still betrayed a little apprehension, as to the way he was examined, not as much in what he said but his manner of saying it. However, he will express no fear. He claims perfect insight into his former condition and says this attack was much lighter. Physically the same findings as the previous year. No further relapse.

*Summary.*—A patient with marked family history, with fracture of the skull at 22, had some peculiar sensations and possible hallucinations after a blow on the abdomen at 25; and at the age of 40 and 41 two peculiar semi-delirious attacks, especially the first, with a peculiar fabrication.

A less certain case is that of W. R., according to the family physician, in combination with malaria:

Case 18. W. R. Patient born 1834; blacksmith. A brother died of shock at 70. The two sons are wayward and constitutionally inferior. The patient was born in Ireland and has been 45 years in the U. S. Average development. Emissions before marriage would make the patient feel weak and ashamed to go among people. No masturbation. Marriage at 25; of six children three died as infants. The patient has been an efficient worker in an axe-factory and four years ago retired from a business collecting old iron. Health always perfect. His wife died in 1890. He married again in 1892, but his wife left him in a year because she could not get along with the children and the sons persecuted the father for his property.

March 1, 1900, the patient fell on the ice. It made him dizzy, confused, "detached," and it hurt him to chew. It seems that water dripped from the right corner of the mouth and that the right side was a little disabled and twitched so that a physician spoke of a slight shock; he could not speak properly, as it made him nervous and "de-



tached;" he could not write. He remained in this condition until he visited his brother in Milford, on March 15, as he wanted to go to the Massachusetts General Hospital for his head. There he would tell the same thing over and over again, especially the difficulty with his sons. He talked of being apt to imagine at night that he saw them come into the room, or that he heard their voices. He showed no memory defect. Sleep was very deficient. Occasionally he mentioned his fear that his sons might poison him. March 26 he complained much of headache, would not be taken care of by the daughter, ordered her out of the room and wanted to go to the hospital. He had a chill and fever (102°), and explained later that he had diarrhœa and would not want to bother the women in the house. He was, however, rambling, and a physician considered him unfit for a general hospital.

On admission March 26, 1900, he complained of having chills and fever, was rather reserved towards the patients, but bright and affable and even loquacious with the physicians and fearfully tiresome owing to the details. Orientation perfect. Calculation poor; subtraction confused him completely. A careful physical examination showed nothing special beyond accentuation of the second aortic sound.

The patient adapted himself fairly well, but had many requests, and finally urgently pressed to get out of the "pauper institution." While at first he had admitted some hallucinations, after March 15, he denied them vigorously.

The patient was discharged April 9, 1900, with a diagnosis of infectious delirium (?) on traumatic basis. (According to the family physician with malaria—no plasmodia were found here.)

*Summary.*—Trauma, slight weakness in the right side, nervous uneasiness, slight confusion and unreasonableness during a febrile episode.

The following is an *atypical disorder resembling dementia præcox*, but ending in recovery, *elicited by grippe*, in a girl with two cranial injuries.

Case 19. E. B. Family history negative. The patient, of Canadian parentage, was born 1879. She went to school from 5 to 16, and was a normal child. Menstruation, from 15, was normal. The patient worked from 16 until May, 1900, in a corset factory, giving satisfaction. She was socially disposed.

At 18 (1897), she had a "peculiar nervous attack lasting about a month." After a wake—she was always afraid of dead people—she came home nervous, did not know any one (she denies this later), and had a terrible pain in the stomach. No further account.

1897, the patient was caught in the shafting and sustained several scalp-wounds and a fracture of the humerus. She was unconscious 48 hours, and confused for 2-3 days, but recovered completely.

1898, she fell when dancing, and was unconscious two hours. For a week things were blurred before her eyes. She did not lose any work, however.

April, 1900, she had grippe and had to stop the work. During this attack she became *hypochondriacal* and spoke of pleurisy and consumption and spinal meningitis, had *partial facial paralysis* (from the injury?); she did not sleep well since then, became irritable, unreasonable, complained of headache, numbness of the left side, stomach trouble; at times she was depressed and crying, and again laughing in a silly manner to herself. She became indolent and lazy, talked much of her troubles, spoke of suicide. From June 1, 1900, she had vivid dreams and heard voices at night, which scared her so that she came to her father's room. She was afraid she would go crazy, and wanted to kill herself.

At the hospital she was fairly oriented as to time and persons, but was not well informed as to the locality (probably through misinformation). At night she was restless, frequently got up saying: "I want to go and see him. Where is he?" Another night she screamed and struck another patient, and jumped on the floor; in the morning she was abusive to other patients. She gave a good account of how she came and was pleasant during the examination; at other times she cried or said: "I know what you mean; you can't fool me; I understand it all."

Physically she showed a linear scar over the occiput. She complains of feeling *sometimes dizzy in the morning*. There is much *epigastric tenderness*. *Right pupil slightly larger than the left; odors better discerned with the right nostril*, but none are named. *The reflexes are exaggerated, probably more on the left. The left side of the face is more flabby*, the forehead corrugated equally, but the *left eye not shut with as much force as the right*; tongue median; *subjective feeling of weakness in the left extremities*. No tremor. Roughening of the first mitral sound disappearing on sitting up. Rate 75 and 90 per minute lying and sitting. Appetite poor. Orientation perfect. Good grasp on the situation, but little knowledge of current events (Bryan Vice-President; elections in April or September). Memory not deficient. *Calculation rather poor*. The patient complains that she is *watched, talked about*, referred to in the newspapers and also in songs and motions of others. Every one is against her; she is *blamed for everything*. "I am an American of French descent; by the 1st it will all come out." What? "Well, the trial will all be over by the first of July." What trial? "Why, either for the state's prison, or take my life away." You will be tried? She nods. What for? "Well, I don't know but what I hear." What do you hear? "That the 1st of July they'll tell the whole story?" What?—after repeated urging—"for spreading the news of what goes on here." "There is a girl out there called Pauline—she said it." "I heard they were going to kill me this afternoon." Aural or other hallucinations cannot, however, be estab-

lished directly. *Many statements are contradictory.* To the attendants she was resistive at first, had to be dressed and undressed; she was inclined to refuse food. No flight of ideas (but ready fabrication?).

*Later she admitted having heard her father's voice here.* She became more adaptable, gradually gave up her somatic complaints and ideas of persecution, but gave no good account when she left July 11.

Her father wrote September 15, 1900, that her weight has increased from 95 to 113 pounds, that in two weeks she began to work again and had been quite well since.

*Summary.*—After two cranial injuries an attack of grippe with psychendriacal depression, and attitude of persecution with possible hallucinations with confusion of facts of current events. Recovery.

*The susceptibility to alcohol* is plainly shown in the following:

Case 20. T. M. Born 1878. Family history negative. The patient had an average development. From the age of 12 he masturbated frequently for several years, and when he stopped it he had abnormally frequent emissions which made him feel languid and disinclined to exert himself. Especially during the summer of 1899, he was greatly troubled, became thin and pale, and fearful that people would notice it. He changed boarding places. From the age of 17 he worked as a tinner, mostly on roofs. From the age of 19 he has been drunk at times twice a week, and then perhaps abstained for several months.

Sunday morning, May 24, 1900, the patient was found unconscious by the railroad track. He was taken to the Worcester City Hospital in deep coma, bleeding from nose and ears. The pupils were equal, and reacted; there was no paralysis; the pulse was weak and irregular. The bleeding from the ears continued two days; there was much muscular twitching on the second day and involuntary evacuation. On the 30th of May, the patient began to regain consciousness and control of the sphincters. The 4th of June, the patient was able to sit up, and he was discharged well on June 26, 1900. This very summary account is supplemented by the patient as follows: He remembers nothing from half a day preceding the accident to a moment when the doctor was taking his temperature by the rectum. After that he was clear, but at times he was told that for an hour he had talked at random, had kissed his nurse's hand, had got out of his restraint, gone to the kitchen and eaten lemon peels and everything he could find till he was caught. For these episodes he has complete amnesia, and he only knows that they occurred with exacerbations of headaches, especially on the left side. The hearing was bad, the ears pained, and once he pulled a clot from the *left ear* and started renewed bleeding; the right eye pained in the light; he saw double (two ambulances and two men getting off); he had *no taste* for ordinary substances (meat, bread), but could taste vinegar and sugar, when smacking his tongue around. food was liable to remain in the left cheek; whistling was impossible;

the right (?) eye would remain half open. Mastication was possible, but the tongue could be moved but little forward and backward and swallowing led frequently to choking; the left arm from the elbow to the trunk was normal, but the left leg felt cold or burning. He had difficulty to pronounce p and b (up to the month of October), but no aphasia. He *could not sing* up to October, and then found that his *barytone* had changed into a *tenor* voice.

According to his own statements, he went to work again. In July he had dizzy spells at times and used to sit down and get lost, "a terrible dizzy feeling." Towards October he felt worse; he would drink, and fell from a bar-room chair, striking the face; ever since then he has had pain. Drinking would affect him for a week or two with "a passionate feeling," and "if I dwell on it at all it seems to discharge and get the best of me." "Just the same as if I had wet dreams, and I have them right along;" "right out itself." "My head would pain me then and since I got hurt my eyes keep twitching."

He was committed because he felt poorly, claimed the doctors did not fix his head right, wants a copper plate rivetted to the back of his head to keep the air off his hair. Air bothers him all the time. At times he feels an impulse to take a knife and kill some one.

On admission he was found to be a man 5 ft. 5¾ inches tall, weighing 130 pounds. He complains of headache and dizziness—"I often lie down and do not remember going there."

The pupils are equal, react; there is slight diplopia on looking to the left and upward (see Fig. 1), and slight flickering of the right upper



FIG. 1.

lid. The hearing is very defective on the left, less on the right. *Smell* abolished on the left, on the right he says of peppermint and wintergreen—"like fat burning," and of orange—"lemon and orange." *Taste* seems *abolished on the left*, and on the right reacts only way back and very slowly. Cutaneous sensibility normal; occasionally the right leg "gets hot, and when I touch it to the left it feels like fire." The left foot is dragged slightly, the left side of the face is slightly less active when the teeth are shown, tongue and hands show tremor; the knee jerks are considerably exaggerated and show clonus; there is double ankle clonus, stronger on the left; no Babinski. Left hand shows slight incoordination (touching the nose). Writing defective, also spelling; no speech defect. The patient was perfectly oriented, ap-



peared a little anxious and dull and showed a very peculiar reiteration of syllables, not of the nature of stammering; a certain uneasiness and haziness, and defective memory.

The following statement of November 24, gives a number of these characteristics: "My hid, hid, hid, head, the head was not struck right, and I said if it was fixed up with copper I would feel better. I got a pain right here, and it aches me all the time. And my head aches all the time, and my head aches all in the morning, all the time." (indicates mastoid). "And I thought if you could get a piece of copper fastened around my neck, soldered, it would be all in there, you know. Pain around there all the time; sometimes I see two or three things, and I think if the doctors woo-wood-would look at my head, they could fix it. My head, my head pains me all the time when I talk." Can't you breathe through the nose? "Yes. I can't hold me own lips, they are all broke." What is broke? "The face, it can't be kept down; I smoke cigarettes like that with my lips down. I would like to get that done just as soon as I could." What? "Have the head fixed" (indicating with hand). Whence the idea of copper plate? "I told one of the doctors, and he said tha-that they put a plate in my head and they did it wrong. I thought if I had a larger one way down on my neck it would stop the pain." The patient says he came to Massachusetts last April, "and I was working around the country trying to elect Mr. Bryan." You got hurt? "I was on board a boat and a train ran into it; there was three of us got saved. I was in a hos-hos-hos-hos-pital." What month? "I was never sick a day day in my—my life until I came to Worcester. I never had had it till I got hurt, the skull wasn't fixed right."

November 26, he did not remember clearly the physician, said "your face looks familiar"—the physician who had examined him two hours—two days before. He complains of having occasional spells of getting dizzy, and lots of worry and imagination, such as "all the horses getting bigger, or it had a hand." "I imagined I see things about my bed." November 29 he came to me (to the physician) with a tale that the night before while awake he twice saw a man stealing around his bed, and when he jumped up he was gone. November 30 he did not remember having seen the physician the day before. He complains of having vomited in the night, of having been restless. That day the headache disappeared. He became brighter, but slightly surly on trivial cause. His physical condition had improved slightly. December 19 he hears well in both ears, the right hand is still slightly stronger, facial movements are symmetrical, the hands show tremor, especially the left; the knee jerks are about equal, slightly increased; there is no ankle clonus. He plainly remembers seeing the man stealing around his bed, but no hallucinations of hearing, and he attributes his trouble to a two month's spree before admission.

*Summary.*—Fracture of the base, with slow subdelirious recovery. Under the influence of alcohol, headache, dizziness, emissions, peculiar sensations in the head. Recovery.

Another combination of trauma and alcoholism is that in the following case of traumatic epilepsy:

Case 21. M. H. Born in France, 1844; of average development. Married at 37; two years later, 1883, her husband struck her with a heavy glass tumbler. She was unconscious three hours and recovered at Bellevue. She was discharged with a scar and depressed fracture of the left parietal region. After the death of her husband, 1885, the patient did housework; about 1897, she associated with a drunkard. December, 1898, she had a series of 6-7 fits in 3-4 hours, was stupid three days, another fit about middle of February, 1899, and after an intoxication with wine, a series of six seizures 10 or 15 minutes apart on August 11, 1899. The next day she was confused, repeated names in a low voice, the next day talked gibberish, unintelligibly; she then became restless, went about the house, packed up imaginary things. The physician found her again sitting in bed mumbling her name. On admission, August 15, the patient was dazed and dull, then restless and noisy; she broke all the dishes on her tray, defiled the bed; August 16, she claimed to be 54 years old, to have been a teacher in France, to have lost a girl 17 years old. She complains of ill treatment at home—"he bothered me and I gave him a good licking," etc.), of headache and backache; that she could not stand up, "the old man hurt my shoulder." "My sickness is in my head." August 17, she began to be oriented, still complained of headache. "Probably the neighbors called a detective because I cried so." "Sometimes I hear and see my father and mother, but they are long dead." The patient is somewhat uneasy, trembles "like a leaf" when writing; but gives an approximately correct account of her history. She begins to say that probably the account of the fights at home was based on imaginations.

The physical examination showed a depressed scar to the left of the bregma, residuals of right hemiplegia (exaggeration of tendon reflexes on the right, double ankle-clonus, a little more on the right side, slight weakness of right lower facial but greater mimic activity in the right naso-labial fold. Tremor of the right hand, but equal pressure). Deep defect of olfaction on the left, defective hearing on the left; the two or three episodes of spasm are said to have been limited to the right side. Mitral insufficiency. No psychic defect symptoms. Recovery from this episode.

*Summary.*—Alcoholic excess leading to a series of convulsions sixteen years after a cranial injury. Post-epileptic delirium.

The following case, following a slight, dizzy turn, three or four weeks after a fracture with meningeal hemorrhage, shows

a *deficient appreciation of the situation with uneasy sullen attitude*. Alcoholism and queerness preceding the injury:

Case 22. A. H. Born 1863, of Massachusetts-Canadian parentage; waiter; married; father of five children. For six years has been in-temperate.

October 26, 1901, the patient was picked up in the street, taken to the Boston City Hospital unconscious, bleeding from the left ear, the head drawn to the left, the left pupil dilated, not reacting to light; slight ext. strabismus of both eyes. The right arm and leg flaccid, non-responsive, the right knee-jerk diminished; Babinski reflex on both sides, more marked on the right; cremasteric absent on the right. An operation found the left meningeal artery bleeding and an extradural clot one inch thick and as far as the finger could reach. Recovery with a small sinus of the scalp.

November 22, the patient had a "slight dizzy turn," but was all right. November 24 he was vaccinated. November 26 he became noisy, threatened to escape, refused treatment; sedatives quieted him; he again helped on the ward. December 2 he became again sullen and uncivil. He refused treatment, said he was not sick, at the same time he complains that nothing is done for him. He talks disconnectedly of insufficient food, that the patients are against him, that he will have nothing to do with them—"The doctors do not treat me right. You see that big scar? The ether they used has taken away my hearing in that ear, my eyesight and my teeth." "I shall advertise the whole thing." At other times he worked again. December 5 he refused to have his head dressed by the house officer and even the visiting surgeon; at night he slipped out of the ward and went home, and was brought back by the police because he made violent threats to his wife. At this time the wife stated he had shown *queerness and inability to support the family for four years*.

On admission to Worcester Insane Hospital, December 13, 1901, the patient was clear. He said he was fussy at the hospital. He had a discharge of yellow fluid from the sinus, slightly smooth forehead on the left, a more subjective inability to wink the left eye. Equal exaggeration of knee jerks. He makes frequent petty complaints, is often saucy, impudent and sullen, speaks of the wrong done him by the commitment. Says he is a surgical case, but wants to get out of the bandage—"if my wife sees that she will think I am nutty sure."

During February he became more pleasant and was discharged much improved February 19, 1902.

The next case shows *invalidism* following a fracture of the base—sadness, lack of ambition, headache; *epileptoid attacks* two years after the injury followed by attacks of fear. Arteriosclerosis; tremor, incoördination, slight slurring of speech. Improvement. Previous alcoholism.

Case 23. J. M. Family history negative. Patient born in Ireland, 1847, brought up in Massachusetts; veteran of Civil War; married 1872; four children; the patient worked as a fruit peddler, and led a congenial, happy life. At times he drank heavily, up to an injury, May 18, 1900, when he was thrown from his wagon by an electric car, struck on the head over his left temple, bled from ears and nose, and was unconscious one hour. Since then he did not work, seemed sad, devoid of ambition, cried often, refused to be comforted, sat around the house. The head gradually began to ache at the site of the injury. He grew worse.

April 30, 1902, the patient got up from his bed, walked into another room and suddenly fell against a stove, rigid and trembling all over. In a few moments he regained consciousness, but felt weak and stayed in bed a week. He staggered when walking, but showed no paralysis. Soon after this, he imagined he saw a man with a knife after him—"he was standing near a lamp-post with his hands in the pocket and moving them, so" (the patient showed the physicians how and explained that there was a concealed knife). He would not go out of doors without an implement of defense after this. June and July he had two severer fits and asked to go to Worcester to get cured. He is afraid he might do some harm, or kill himself.

At the hospital (July 21, 1902), the patient was quite adaptable, depressed, homesick in the first ward; he was perfectly oriented, had a good grasp on the situation, practically no memory defect (but he claims he was born in Cambridge). Calculation poor. Speech tests with some slurring and elisions; writing poor (no schooling). There is a small scar over the left forehead. The patient feels better, at times sick at the stomach; pupils and vision normal; hearing slightly impaired on both sides; reflexes exaggerated, equal; slight tremor of tongue and hand; slight incoordination of hands; slight swaying in Romberg position, considerably thickened and tortuous radials and brachials.

The patient felt much better, and September 1, 1902, was discharged improved.

Case 4 (page 113) deserves to be put down here as a case of change of character and an *epileptiform psychosis*, relief by operation and *great susceptibility to alcohol later*.

In another, Case 24, a trauma to the right parietal lobe was followed by a *period of relative ability to work*, then in four weeks, *in connection with headache, an acute hallucinosis* which is stamped as *hysterical* by the peculiar subsequent development (typical hysterical attacks). Probably no alcoholism. Final outcome not known yet.



Case 24. J. H. Patient born 1870; 27 years old, wire mill worker; married; one child; born in Finland, slight alcoholism. 1890, gonorrhœa.

1892, injury to occiput, with no consequences but dimness of vision in outer half of right visual field (history indefinite), coming on several months after injury, in 1894, in Ottawa hospital with abscess of right leg which was opened, healed in seven weeks. Three weeks later second admission, with cold in chest, seven weeks.

1897, February 1, struck by ice on right parietal bone, without falling, walked home; next day worked half a day, then returned home to bed; in bed four days; pain in left occipital and upper cervical region; *feeling of stiffness* and poor use of left forearm and fingers; during 3-4 days internal strabismus of left eye, *transitory diplopia*. *Dimness of vision of left eye*.

February 5-28; occasionally slight vertigo or staggering at work; use of arm good.

February 28, splitting pain in the head. Hallucinations of sight and hearing (men on the wall; "listen, they are pouring water into my body; Mr. Cleveland is selling soap in the street"). Attack of violence and destructiveness.

March 5, occasionally fits of grimaces. March 13, examination: Pain point on left parietal region. *Constriction of both visual fields*, especially the outer quadrants and the right inferior one, simulating bitemporal hemianopsia. *Smell* less on left side. *Taste* on left anterior part of tongue diminished. *Tactile sense* slightly reduced on face (and arm?). *Pain sense?* *Muscular power* seems occasionally diminished on left side. *Knee jerk* varying, slight, occasionally increased. No ankle clonus. *Pes valgus*. *Sensorium* normal, somewhat dull and sleepy.

March 27, on clinical demonstrations to the staff: pain point on left parietal and left inframammary. Hemianalgesia sinistra. Hysterical fits. When patient entered the room he looked around with some hesitation, and went to the chair assigned to him with some uncertainty, trembling. He then was noticed to stare at the wall looking at one point, then further towards the ceiling, then at the floor, as if he saw something. Then he became restless, grasped the arms of the chair, and with his muscles contracted raised himself spasmodically as if to get away from something, without fear, but going into a silly laughter. Then he sat down, looking vacantly, unable to say that he had done something or why he did it. These conditions came at intervals of several minutes, and lasted from one-half to one minute, one particularly long spell occurring when the patient took off his shoes and socks. The subsequent attacks became more and more of the type of laughter in a vacant condition. When standing with eyes shut a tendency to fall backward. Analgesia of whole of left side of body and head. Ques-

tioned next day as to reasons for conduct, could get no answer other than "the doctors see my foot."

While formerly he had adapted himself as well as his poor knowledge of the language permitted and had given a consistent account of his history, the patient would show his hysterical fits much oftener, and at times he was unable to arrive at any reply.

April 8, when the doctor said "good morning," the patient commenced a series of postures, principally of the eyes and head, but also of the hands and body. His eyes were directed at first to the extreme left with a silly, furtive look; the head then dropped forward with the eyes closed in resignation attitude; then the head thrust forward and the features put in a show-off attitude. Then turned round, posturing as he did so. Seated on a bench—at intervals he picked forcibly at his clothes, then rolled his eyeballs up ad maximum, then became semi-rigid with panting respiration and fell over to the right, rigidly, as though to lie down, but sustained himself midway for a moment and later recovered. At the end of the attack he usually takes a long breath. He frequently makes smacking movements, pupils not widely dilated. Right knee jerk absent. No Romberg. Anæsthesia of both sides of the body.

April 9, sitting on the bench with the index finger of his right hand and the hand and arm slowly extended as though to point to something on the floor. Then his arm was slowly drawn up and the tips of his fingers placed on his forehead. All the time he moves his lips and whispers to himself. When shaken repeatedly he breaks out into nervous laughter. He does not react to the prick of a pin on either side. He makes chewing movements, looks without staring, but without fixing. When forced to fix he begins to turn his eyes upward and to the left, at the same time pushing his right hand forward. He frequently pinches his trousers and pulls them as he would pull the cords of a 'cello. Some of the movements are executed with a foolish smile. When the eyeball is touched the eyelids quiver very little and the lids close slowly. At other times even when the eye is shut, it is turned either to the right or left to the extreme limit. Once he responded to a call and looked up. To the question, "How are you?" he simply answers with a movement of the lips. "What is the matter with you?" Again answers with movement of lips. "Have you any headache?" He slowly shakes his head.

April 22, the question of transfer to Finland called for decided and quick replies on the part of the patient, who did not want to go. Tenderness of the head disappeared. Fits are rare and easily interrupted by speaking sharply. When the decision of discharge to Finland was settled the fits became more numerous. The last note, April 30, is as follows: Spoken to repeatedly he does not answer; he smiles a little, looking blankly at walls or ceiling; reacts to pinching, but says noth-

ing. No knee jerks obtained. No Romberg. No pain points. Reacts perfectly, but evidently does not care to talk. Pupils react perfectly. Field of vision slightly restricted on temporal side of left ( $45-50^{\circ}$ ); on right perhaps slightly in upper quadrant. Tongue straight but tremulous. Hearing about the same in both ears. Half an hour later seen playing ball alertly, catching it well and running after it swiftly.

May 8, several days before discharge on second visit of the State Agent, he went through movements similar to those described above.

Discharged care of B'd L. & Ch. to go to Finland. *Not improved.*

The following, case 25, is an instance of a *neurasthenic irritability following trauma, with several peculiar episodes*. The first commitment, two years after the injury, was caused by threats to his wife; the second by a peculiar *dream-like episode*, in the course of an exacerbation of *hypochondriacal depression*; and the third, after an *attempt at suicide*. The patient had syphilis 13 years before the trauma, but no sufficient indications of general paralysis.

Case 25. M. J. M. Father a hard drinker. Patient born 1866; average development. Freight clerk, then an English soldier for four years. Chancre and anti-syphilitic treatment 1885. Spring 1888, copper colored spots, later with matter in the centre, healing up spontaneously. Married 1893; three children. In the U. S. since 1888, he has been in the steady employ of the West End Car Co.

February, 1898, a fall from the running board of a car; momentarily stunned, but able to take the car to the stable; the injury caused ulceration of leg, which has broken out about seven times since. Shortly afterwards (November) the patient began to be irritable with his wife (who had loaned their money to her mother and did not get it back until the day of his commitment). May, 1900, the patient made several threats of doing the Borden act some day (i. e., killing the whole family); he kicked his little girl twice, nailed the coffinplate of their dead child to the door and laughed when his wife asked what he meant. A revolver was taken from him. "He was going to sell it."

The patient showed exaggeration of reflexes, a fine tremor of tongue and hands at rest, no defect of writing; very variable pulse (84 standing it rose to 120 while being counted). He admitted feeling nervous. His sleep was irregular. He went home June 23, 1900. He found no work for 2-3 months and was often discouraged. Then he washed street cars from October till Christmas, and stopped because he felt weak and dizzy. He would lie in bed a few days, speak and eat little, complain of headache; in March he imagined he was snow-bound and seemed disoriented then; he often asked why he was kept in the house, stood in the corner and often said: "I am doomed." For several weeks he had "shivering spells," a general tremor lasting from a few

hours to a day; he slept poorly. He thought his stay at the hospital would keep him from work. April 2, 1901, he got up at 4:45, walked about the street without coat or hat, and was arrested; at the police station he did not seem to know just what had happened.

On admission April 2, 1901, the patient was pleasant to the physician, but sat sad, with his head bowed, and was hesitant in his replies. He was oriented as to place, but thought it was March 27, 1901; the memory of recent events was a little blurred, but not that of past. He accounts for the return by saying: "I turned on the water and drowned four people. They were in their rooms; they were my wife's father, mother, one sister and one brother. They were in the cellar at the time, and I flooded the cellar." Why? "Just to let it run and see how it worked. I let it run for a half hour." That could not have been enough? "No, I don't know where the rest of the water came from." When was this? "Saturday evening." When was the funeral? "They are not buried yet. I don't know when they will be. I'm here for having *caused the death of those four people*, also I'm a *physical and mental wreck*. I'm all run down and weigh only 57 pounds. I am strong enough to lift double my own weight. Sometimes I say things that I don't know afterwards that I said them. I worry because I'm down as far as I can go physically. I feel depressed for the same reason. I always think of what the outcome of this will be. Since I left here I have eaten only a few weeks and the rest of the time ate only a little. The first time I came here I made a threat to shoot my wife because of family trouble and money matters. She spent too much." He denied amnesic periods. "I left the house at 7 A. M. yesterday morning (it was 4:45 A. M.), because I had killed those four people and wanted to escape arrest and to go as far away as possible. A policeman met me 100 yards from the house and arrested me and took me to jail. They did not try me for murder. But I said I was mentally weak and they sent me here." No defect in writing or speech. No insight into his delusions. "My stomach and intestines are still intact, but shriveled up, and I always have a hungry feeling." The next day he was duller and slower. He said he felt dizzy, but gave the same account, and added the policeman had told the doctor "that I was going to Fresh Pond to jump overboard, but that was not true." "It was 5 A. M., the day before yesterday." April 5 he corrected both delusions and worked. In the course of May, his appreciation of time was at times slightly at fault. The pupils were perhaps slightly sluggish, the knee jerks exaggerated, hands and tongue showed some tremor. A few days after an attack of erysipelas he escaped and was found the next day near the lake, as he had failed to get a ticket at the station. He admitted that he felt discouraged. Two days later he sent out a letter complaining of ill-treatment. When confronted with it, he admitted it, and said: "I am guilty of lying, Doctor, and I have acted like a cur." He nevertheless tried to smuggle an identical letter



asking for poison two days later; but then resumed some work. During August and October he did well and had perfect insight. He showed a *difference of the knee jerks*—the left was more marked than the right; also the left Achilles reflex and slight tremor. November 8, 1901, he was discharged much improved.

He worked in three different places at small pay, but sent his wife money. In an attack of depression he was found unconscious in the bath-room with the gas turned on, June 26, 1902. He claims he just felt sick at his stomach and that he came to in the Carney Hospital. He had drunk "quite a good deal" in the past two weeks. On admission he was very careful to dissimulate suicidal intents. A very careful status showed no deterioration. Speech and writing are perfect. The day before the "accident" he had blistered his legs in the foundry. In his last conversation he gave a good account, but did not refer to his original trauma. No difference of knee jerks noted.

In quite a few patients the traumatism has a decided part in the subsequent development of a *paranoid symptom-complex of by no means typical nature*; in one case *blindness* contributed, in another case a certain *constitutional deficiency*.

Case 26. D. P. T. A bright boy who lost his left eye at the age of 5, and the right eye through "cataract" at 20; happy disposition. At the age of 20 injury by train, dislocation of the left shoulder, fracture of 7th, 8th, 9th and 10th ribs of the left side; fracture of the right ulna with dislocation of the right radius, bleeding from nose and mouth for a few hours, unconsciousness and involuntary micturition and defecation for three days. After the accident the patient became peevish, irritable; about six years later exceedingly cross and ill-tempered, quarrelsome; he would strike on the least provocation. Claimed people were talking about him, making fun of him. At the age of 28 he began to argue on religious subjects, claimed the priest had deprived him of money, shouted at times "Long live the Freemasons." He accused his sister of trying to poison him, tasted kerosene in his tea and became violent to his sister and neighbors.

At the hospital he showed perfect orientation, subjective deterioration of memory (not demonstrated). He maintained that the Freemasons controlled pretty much everything and are the cause of his commitment. The Roman Catholic Church is the only true church; it is a sin that Protestant ministers are allowed to live. He claims he wrote this to papers in 1892 and that a priest replied (*fabrication*). Denies all charges of ill temper. The patient is excessively fat, with practically no beard; under development of testicles, webtoed on both feet; traumatic deformity of right arm; scars of unsuccessful operations on the eyes; diminution of the right knee jerk. The patient showed a certain indolence and slightly surly attitude at times, made light of his ideas, and in two years went home again.

*Summary.*—Trauma in a blind young man; peevishness and irritability. In the course of six years development of a vague paranoid complex with fabrications.

Case 27. J. L. B. Born 1868. Puberty at 12; easily aroused and apt to become despondent; *always excitable*, dissatisfied, craving to get everything she saw—piano, bicycle, etc. Married 1890. *In 1894 thrown from bicycle!* 18 days unconscious, five weeks at Massachusetts General Hospital. Since then *loss of memory*, had to keep memoranda, to look at the paper for date, would sit around instead of working and have the husband do the work, would easily become *impulsive*, began to imagine the neighbors said unkind things, *made up a story* about the settlement of her case in court, etc. *Delusions of poisoning*.

Admitted July 27, 1897; very small miniature frame, but well formed. Hearing 2 inch on right, normal on left. Knee jerks increased. Tremor of tongue and hands. Sleep poor. Here in half delirious condition until August 8. Restless, talking of going to opera, of clothes and piano being taken away; of somebody saying the baby was in trouble; also that Georgia (sister), and Frank (brother) were dead; of vermin in food, rats gnawing feet; ill treatment, no flight of ideas; hallucinations? Interprets talk and noises; over-affectionate to physician (dear doctor!). August 9, complains of bigamy of husband, gains orientation. Letter of August 16, to sister—perhaps she “dreamt” of above things. August 19, fabrication of friends having collected money to build a fine house for her—long picture.

The patient remembers the occasion on which she met with her accident, but the latter only from hearsay. She adapts herself fairly well to the hospital routine, began to work a little, but soon developed peculiar fabrications.

November 3, 1897, she went into the supervisor's room and persistently talked on sexual matters. She said her husband joined the Masons about the time of her accident; that it was a rite of the order that the wife should have connection with as many men as she was years old; that one night two men came to her room in the ward, that she saw them, then smelled chloroform and knew nothing more until morning, then she knew that the men had had intercourse with her; she insists that this has repeatedly occurred; that different physicians of the hospital have taken her out to the grove and kept her all night; she quotes Bible texts drawing inferences of a sexual nature.

November 16, the patient when combing her hair seemed to grow faint, and when the physician came, she talked of a tall man who wanted to take her out for immoral purposes. She seemed frightened and begged to be allowed to kill herself; she had hidden a pair of scissors in the afternoon. Next morning she gave a long account of feeling a little faint, “cold like.” Claimed that the other day she went out with that tall man, and they went driving. She gave a complete story. When did the man call? “The first of the week.” Yesterday?

"No, it wasn't yesterday, it was Saturday; no, it was yesterday, Monday." How was it? "Why, he called and an attendant was with Dr. Quinby." Where were you Saturday? "Oh, I went as far as Boston." "Nobody knew about it here." "But my husband knew I was in town. We went around where he worked. He was greatly shocked; he saw me in knee bloomers and a cap." Where did you get those things? "He hired them." Did you dream this? "Oh, I wish it were a dream." You never were out of here at all except for walks. "I wish I wasn't, but my husband knows all about it. I'll tell you why it was. My sister married a Catholic lady, my brother married a Catholic, and this one made him promise to be a Catholic. But Cris and I wouldn't be Catholics, but I wasn't bigoted. I wouldn't change, as I had been brought up a Protestant. I wouldn't join the Catholics" What has that to do with the story? "Oh, you see, everything is for money." This and similar topics were brought up again repeatedly. She frequently complains. June 8, 1898, she wrote to a cousin, "I would like to be removed from here. I have been annoyed again this week and had to sell fish from a wagon in the street. And have been operated on and am in much pain, all my private bills and marriage papers are here in a building on the grounds; I have made butter and was sent to see it; I have been taken by enemies to Boston and made nude in the street, and they brought me to the police station. I have had a dress sent me, and hat, and I did not receive it. I have been taken away and put on the cars and brought to Boston. I received five dollars for the making of a dress and did not receive it. Have been carried to Boston on a freight train, and my enemies have taken me to houses of ill fame," etc., .

Patient is easy going, addresses the physician in German with "du." She has frequent complaints, but behaves on the whole normally.

August, 1899, she would not believe that her husband was dead (he died in the State Almshouse). "Somebody is perpetrating a fraud for the insurance money." Soon afterwards she claimed that he had called on her; at other times she expected him to call.

It is difficult to see any especial change in her condition at the times of fabrication, except that they occur in connection with slight outbreaks of irritability. The memory for dates, etc., is very fair. Her application to work is usually satisfactory.

*Summary.*—Slight constitutional defect. Cranial injury with prolonged unconsciousness. Great difficulty of memory, indifference and gradual development of a paranoic condition, with greatly varied but fairly systematized fabrications.

In the following case, the *paranoic condition* developed so closely in connection with the reconvaescence and so strikingly *resembling many non-traumatic cases*, that a more than accidental causation cannot be laid to the trauma.

Case 28. A. T. Born in Ireland, 1840, of average family. A smart girl. Married at 18; a widow at 21; in U. S. since the age of 28. Occupied as a cook; not intemperate.

At the age of 52 the patient fell down the steps, broke both forearms, cut the forehead over the eyes and was unconscious over an hour, remained in bed 14 weeks, and during this time developed delusions of robbery. She thought her sister, who had just come from Ireland, came after her money. Everything that was done, was done to get her money away. She was able to take care of herself again and boarded alone in several places. Eight years later commitment was necessary. She was unable to sleep at night and kept the household awake by crying out to unseen tormentors. All her little ailments, pain in the shoulder, or brown spots on the hands, she lays to a man.

Who is this man? "He is Clifford's wife's brother, and he is tormenting me day and night, throwing stuff down on my hands and feet. If I was eating my dinner he would throw stuff down on me, but on nobody else. When I went to the closet he would give me a slap in the face. He is in league with the spiritualists, he can rap and get as many people as he wants. When I was reading or sewing he threw something like powdered sugar; it would leave the mark here (shows hands). I never knew what it was to be sick till these spiritualists got after me, but whenever I tried to get up, something pulled me down again as if someone was dragging me. One night when I was asleep it was the same as someone rolling over my head; five different times it was." Have you felt these things since coming here? "Yes, I feel them, they follow me all the time, these spiritualists." Why are they doing this? "I am told they make money by this; the society pays them; I don't know what society, some sick people belong to them. When I was in the hospital Dr. Proctor wrote to Dr. Beaker: 'Tell them the woman is very sick and take these thing away from her.' It is like two fish stalls and they don't want to go against one another." Now, how long has this been going on? "Six or seven years; they come different people out in the same plot to persecute me, and one paid so much a week or month. They are invisible. They are on my hands; they are stiff, I can't shut them. My shoulder feels just now as if some one was sleeping on it. Some of the doctors can take those spiritualists off, but I don't know how."

No physical disorders; the same complaints in the hospital. During an attack of pneumonia, with a temperature of 104, absolutely no change of mental condition.

For the *types of deterioration* we refer again to the cases 7 (invalidism after very severe concussion on partly alcoholic ground with subsequent paranoic development and final pseudo-stupor), 4 (deterioration with traumatic epilepsy), and 6 (dementia in a case with alcoholism and traumatic epilepsy).



In the cases mentioned little stress was laid on the *feature of psychic causation* involved in traumatism. The following three cases show clearly how difficult it is to say what symptoms are to be accounted for by the trauma and what others by the *mental shock and the effect of the consequences*.

Case 29. E. D. The patient, 46 years old, whose brother is insane, but who showed nothing peculiar himself—fell on the ice, 1898, and ran a sharp stick about one inch in diameter into the anus. A hemorrhage resulted. He worked afterwards but had severe pain in the abdomen and small of the back, particularly on bending over. He threatened suicide, wanted an abdominal operation; became hypochondriacal, complained that the skin burned like fire, that he got no sleep, threatened to operate on himself with a razor or commit suicide. April 21, 1899, he was depressed, complained of dizziness in the head; wanted to go to a hospital. He had walked away, tried to drown himself in a brook, was caught, became irritable, violent, was arrested and committed. He showed perfect orientation; admitted that his head "was mixed up;" "swimming around;" "as if in a vise;" that his body is burning and itching all over; there is buzzing in the ears; the bowels do not move properly, and he cannot sleep. Two days later he uttered a self-accusation, that he is not fit to live because he once had cohabitation with a dog. "I ain't fit to live among people. No! I'll never see God again, I ain't as good as a dog." In three days he began to work, he became less nervous and restless, still complained of excessive heat over region of abdomen; but slept better. On June 24, 1899, he was discharged recovered.

Physically there had been only internal strabismus of the right eye, the above sensation and dull pain in the small of the back and over the supra-pubic region, but without any objective symptoms.

*Summary.*—*Hypochondriacal depression*, following diffuse traumatism and injury to the anal region, with *swimming of head and suicidal impulses*; amnesia is claimed for the drowning episode.

Case 30. M. J. F. Family history, negative. Born in Ireland, 1868. Patient came to the U. S. 1886, after having worked on a farm from the age of 12 years. After a few years of work with a contractor, later in a tannery, the patient became a roofer, and began independent work 1895. He is married since 1889; has four children in good health. Moderate alcoholism, no intoxications, no "horrors."

The patient was perfectly well up to the subway explosion, March 4, 1897. He then came home pale and shaking, at other times he flushed, seemed "all rattled and nervous." He grew depressed, emotional when reading anything sad in the paper; hearing and eyesight seemed affected. He would sit in one position with head on hand, did not speak unless spoken to. Within a week he went to see Doctor Putnam. Next night he went on the street in his night shirt and was brought back by

an officer who thought he was drunk. Next morning he was in a stupor; stayed in bed four weeks; grew gradually better and resumed his work. He had to hire men to do any perilous work, as he would get shaky when climbing the roofs; he began to take three to four drinks a day to keep steady, but never enough to make him stagger; he thought people were down on him; that men followed him. He became depressed, seemingly indifferent to the family, emotional, sleepless, the least noise scared him. For a week he did not come home in June, stayed with a former employer; one night he was seen near his store and urged to go to his wife, but he replied "he had no home." The next thing the wife heard was a letter from Jersey City saying only, "I am on my way to fortune or death." In a letter to a friend of his wife's he next reported that he "was a prisoner in a camp in Georgia," that he "was sorry he had enlisted" (June 14, 1898). He wrote home about every ten days short and sad letters, wanted his wife to secure his release. The patient himself states that he had no remembrance of going to the recruiting office, and only a vague one of his arrival at Fort McPherson, that he then had the idea that he had been away a year or more; that the family was scattered and lost; that so long a time had elapsed that there was no need of writing to the old address, and so he wrote to a friend inclosing a letter to his wife. In camp he was told by his friends that at times he wandered about aimlessly, sad; when the sunset and sunrise gun was fired he would tremble and shake; he would see all the incidents of the explosion pass before him—people yelling, flashes of fire and breaking glass; at night he had frequent nightmares. Soon after the transfer to Montauk Point he was granted a leave of absence; he came home, cried most of the time, was depressed, thought everybody was against him, and he even doubted his wife's affection for him, but had no delusions of her unfaithfulness. He had always sent her money; he wanted his release; on his return to Montauk Point he was soon transferred to Fort Brady, where he worried about his wife; then the regiment was sent to Fort Sheridan, and, on his wife's request for release, on the statement that she was sick and destitute, he returned home. The first week he seemed all right, but soon became depressed, worked very hard, grew despondent because he could not shake off the fear, threatened suicide, noise made him start; he became greatly excited and trembling, looked dazed and did not seem to be able to remember. His condition was especially aggravated by a fire, by which the patient was scared.

From the War Department no record could be obtained. The only time the patient was sick he was in the hospital with diarrhœa for several days in August, 1898. He was honorably discharged early in February, 1899, and seen soon afterwards by Dr. S. A. Lord. The patient told him that for a long time his mind was a blank; his memory appeared extremely vague for all events since the accident, but espe-

cially in regard to those occurring in the summer directly following. He was tremulous and apathetic. His wife said that he spent money irresponsibly, and that he complained that the neighbors watched him and talked ill of him, that he thinks people follow him, that he was very ugly when found fault with and caused fear of violence.

On admission, March 9, 1899, the patient was disoriented as to the place, thought it was a general hospital, Wednesday instead of Friday—the first part of March, and after long hesitance gives the year as 1891, later corrects it. The next day he appeared apprehensive, moving nervously about in the ward. In conversation he becomes easily irritated, stares and says: "There is no use in talking about that explosion; if the people about here hear about it I will get no work at all"—"That's why I could not get work." He claimed he had been told he was coming to get work here in the hospital building. He thinks he is able to work. In the examination he refused to read, says, "My eyes are all right. That is the very way I got out of work." His memory is somewhat hazy, he cannot give the year of his marriage, but says correctly it was ten years ago. When asked how things looked outside, he says, "I don't know until I look. I think there is snow"—"It is either March or April." He has marked tremor of the hands, increased considerably on motion; the tongue is broad, with very slight twitching; knee jerks are exaggerated, pupils react; with eyes closed there is a slight unsteadiness. The writing is very irregular and defective, as shown in "comon welth Msscuttess;" when he came to "Commonwealth," he said, "Oh, that is enough"—"You write it first and I will write it after you." Articulation tests are slowly but correctly performed, although somewhat jerky.

Ten days later he was perfectly oriented as to time, place, and person; still marked shaking of the limbs, and a considerable irritability when examined concerning alcoholic and sexual history. Calculation is correct, except "10 x 13 equals 156." He discusses the war intelligently. The writing test is "God save The Comon Welth of Massahusett, March 1899 Wednesday."

March 26, he writes "Comon Weith of Massachusett—" The tongue then was steady, the hands showed still considerable jerky tremor, increased on rotation. April 4, he appeared much better, gave a good account of the *day of the explosion*. He remembers going to work on that day; that he forgot one of his tools, and had to go back for it; he was about 60 feet from the explosion, saw the flash, dropped, felt as if his head split apart, he heard noises like breaking of glass, musketry, everything was swimming and dizzy, he tried to work, but had to stop. Since then any sudden noise makes him nervous, and his memory has been poor so that he even did not know his own tools. He also remembers coming home from Chicago, and how he was started into the present attack by a fire in the basement of the house; he remembers the firemen rapping at the door, then he saw engines pump-

ing water. He claims two periods of *amnesia*. One at the time of enlistment, and for one week later—he remembers Easter, 1898. The second period from the fire in the basement to one day after admission, that is altogether fifteen days. He is somewhat hazy even concerning the fire, it might be imagination, but thinks he remembers more and more the working of the engines, and asks for accurate information from his wife. May 4, the writing test was correct, with the exception of "Welth." The patient showed absolutely no deterioration on careful examination; no delusions; but on May 20 he was transitorily sullen, refused three meals, but then resumed his work (painting bedsteads). He was rather shaky and still seemed to underrate his condition somewhat.

Physically, he showed chiefly the tremor, considerable swaying in the Romberg position and unsteadiness on turning and feeling of dizziness and difficulty of balancing; exaggerated reflexes and ankle clonus; oxaluria.

His sleep was poor for the first two weeks, very easily broken by any noise, which caused fear and trembling. The weight increased somewhat. The ankle clonus disappeared and also all evidence of incoordination.

Discharged June 1, 1899. No reply to letter of inquiry.

*Summary.*—*Traumatic cerebrasthenia following an explosion, with peculiar amnesic episodes, and at first, on admission, marked suspicion of general paralysis.*

Case 31. W. P. Family history, negative. The patient, a machinist, said to have been intemperate, but denying being intoxicated more than once or twice a year, was struck by a live wire, 1895; he was dazed; a day or two later in a dispute with the engineer, he was discharged. He became despondent, imagined he saw his brother and sister across the street and went to meet them; he came back saying, "I thought I saw them." Visiting with his brother he sat in the room that day, gazing fixedly, saying nothing. The next day he thought everybody was after him. He attempted to throw the physician down the elevator shaft, sharpened some axes, hid them in his room. The physician made a diagnosis of pneumonia. He resumed work in five or six months, but has been more irritable and quick-tempered since then. The patient himself says that he was dazed ten minutes by the live wire; said he would not have gotten into the dispute but for that shock; slept poorly for eight months, and during an attack of grippe two weeks after the shock, he was out of his head. During the winter 1899-1900 the patient was unable to keep regularly at work on account of rheumatism, dull, aching pain in his legs. This depressed him somewhat. Thursday, April 26, 1900, he became quite restless and unsettled; asked a number of very immodest questions; asked his daughter what kind of drawers she had on and then wanted to see them. He worked in the day but spent his evenings at home. One evening he asked his boy



whether he had seen the witches, and the next day he put on his daughter's hat and danced around, saying she would be the May Queen (April 28). Sunday he took a revolver and waved it around saying he must shoot the witches. He told his daughter to shoot his wife when she should come back for she was a witch. Monday he made indecent proposals to his eldest daughter, and used very indecent language to another daughter. To the physician on May 1, he admitted that he was not quite right, wanted to be sent to the hospital. He admits having spoken of his wife as a witch, that it was possible for her to fly through the air, that if he could find her he would kill her, that he was filled with electricity.

On admission he said—"They sent me up to the station for creating a disturbance and telling the old lady to get out." "I took her old box and told her to get out and she scooted, that's all I know"—"It was Tuesday" (Monday). Did you sleep last night? "I am a little ahead of the game ain't I? That Tuesday business—it must have been Monday for I slept there one night and came here yesterday." He claims the boy had been talking about witches and he picked the word up and told her "she was a witch and get out and she did. I guess there is two ribs broke." He speaks of "I wasn't right in my mind." What was the cause? "I don't know anything; only the juice I was getting (electricity), it put me into a very nervous condition." Calculation of dates perfectly correct.

Physical examination showed fibrillary tremor of hands and tongue; no speech defect, slight increase of knee jerks; a few granular and hyaline casts and oxalate crystals. He was inclined to be refractory and cranky. July 31, he began to be more agreeable to his wife. August 4, he was struck on the head by a patient.

He still reaffirms the delusions of electricity, claims a right to talk to his daughter as he pleases.

In November he lost his indolent, surly demeanor, gained full insight; the tremor disappeared. He was discharged, well.

*Summary.*—*Electric shock*, followed by an *irritable depression and temporary delirium* during pneumonia, recovery, in five to six months. *Five years later a peculiar excitement* with feeling of nervousness, tendency to be refractory and cranky. Recovery in six months.

#### GENERAL ANALYSIS.

The question of *frequency* is by no means easy to establish. It is difficult to make the statistics of State hospitals as reliable as they should be. The best chance would be offered by an accurate census of the consequences of injury in a community where there is compulsory insurance or a pension system. The statistics of our insurance companies would naturally be viti-

ated owing to their settling their obligations as much as possible before the outcome can really be estimated; even litigation on this score is therefore not very frequent with our companies. The U. S. Pension Office would have an excellent opportunity in this direction; but its material is not worked up and not classified, according to a courteous reply from Mr. E. T. Ware, Commissioner, to an inquiry addressed to him. We, therefore, must depend on the medical report of the German army in the Franco-Prussian war and other army statistics. In the German war, among 8985 head injuries, 13 led to insanity. Stolper reports on 981 head injuries, 138 of which were severe concussions, with 12 cases of insanity, 11 of which were with severe injury, and 9 of the type of direct post-traumatic aberration—so that we may well conclude that some of the cases may have shown subsequent symptoms. Doctor Bailey's statistics hardly cover a sufficiently long period after the injury, and the result of his inquiry in the State hospitals fed by New York City must be taken with caution, owing to the lack of organization of statistical work. This defect alone can explain the statement that among 5000 patients, there was not one who had had fracture of the base.

Our series presents the material of about 3000 admissions during the years 1896–1902. I am convinced that it does not include all the cases, so that probably nearly 1 per cent of fairly safe instances is obtained. Frost found the number to be 1.87 per cent in American hospitals; Kiernan 2 per cent; Edel  $2\frac{1}{2}$  per cent. Hays (American Lancet, November, 1891), found 61 cases among 2600 patients. The high rate of 8 per cent (Clevenger), and 10 per cent (Schlager), probably depend on special conditions or liberality in the use of the term.

Reviewing our material we find a series of 23 cases with mental symptoms following a more or less profound traumatic insult to the head, with the following *types of injury*: In nine (7, 12, 14, 17, 20, 22, 23, 26, 27), a *fracture of the base* is, to say the least, extremely probable or certain; a *fracture or lesion of the convexity* in five (3, 4, 16, 21 and 24), and, at least, a more or less severe *general concussion* in seven (11, 13, 15, 18, 19, 25 and 28); one trauma was due to a *pistol shot* (10), and one to an unknown trauma (6), which left a scar on the forehead. With these we compared the findings in a case of contusion of the

frontal lobes (5), and a case of comminuted fracture of the parietal region (2), and a fall without fracture (1)—cases which did not show any special mental diseases referable to the trauma—two cases of tumor (8 and 9), and three instances of accidents with largely psychic effects (29, 30 and 31); and of the series of 23 cases with certain mental symptoms in sufficiently certain relation to the trauma, an autopsy was available in O.C., Fl. M., and M. R., and an operative inspection in T. (6, 4, 7 and 3).

Our first question is: *Is there a relation between special types of injury and the form of psychoses?* Lesions of the convexity or over the convexity produced epileptic, or at least epileptiform disorders—3, 4, 21 and probably also 24; the diffuse concussions and basal fractures lead to: 1, *initial delirium* (11, 12, 13, and also the case of pistol shot in the right orbit), or 2, *paranoic development*, i. e., a gradual development of a delusional state (26–28), but also very frequently to 3, *intercurrent episodes of a more or less epileptiform character*, spontaneous, or elicited by alcohol or grippe or other usually trivial exciting causes (14, 17, 18, 19, 20, 21, 22, 25). Where dementia resulted, it was due to a complication with epilepsy, alcoholism, or arteriosclerosis (4, 6, 7), or to the early age and consequent difficulties of growth (15).

The nature of the disorders in general hardly allows us to use the traditional terms mania, melancholia, etc. These terms would obscure the characteristic traits, since, indeed, the attacks deviate quite a little from non-traumatic mental disorders, notwithstanding superficial resemblances. While it is true that we cannot speak of a traumatic insanity—there are too many types—we see a sufficient number of characteristic traits. The primary disorders, the “protracted deliria” show beside partial disorientation usually variations between clearness and haziness of sensorium, a certain prominence of fabrications of dream-like situations (see the cases 10, 11, the second attack of cases 25 and 17), more or less coherent according to the sensorium, further difficulty of ready remembrance and of calculation. Alcoholism seems to bring on epileptoid episodes, or at least mental states also seen (though not as frequently) in cases of non-traumatic

epilepsy (3, 21, 22, 23).<sup>5</sup> The paranoic forms are apt to have the difficulty of calculation, inaccuracy of memory and of appreciation of time, and at times a feeling of dizziness with episodes of fabrication, etc., or at least a certain imperfection in the systematization; only case 28 differs so little from an ordinary paranoic condition that I take the injury to be merely an accidental cause.

On reviewing the literature it becomes obvious that reports of mere names of diseases help little. The brief accounts of Mickle show this well enough.

His case 2 (blow on the head followed by cerebral automatism with 300 miles of tramping, then a condition of vacant immobility alternating with weeping and outbreaks, then a condition between hallucinatory and stuporous insanity, with connected dream-romances or vivid hallucinosis and delusions of annoyance and torment connected with the hallucinations of hostile import) had a disappointment of failure in business as an architect. Catatonia<sup>6</sup> is probable, the outcome not mentioned.

His second case of "psychoneurosis" refers to a patient committed 13 years after an injury with pain and tension of head, increased by warmth and stooping, constrictive head-pain, bad dreams, sleeplessness, strangeness of manner and expression, at times "apparently" hallucination of sight and hearing, kleptomania, often automatic, disposition self-willed, excitable, quarrelsome and explosive.

Cases 4 and 5 of Mickle show a hallucinosis of hostile import (accusations), and fear of brutality (in an alcoholic) and of somatic delusions (in a syphilitic after excesses). The outcome is not given. Three of his "depressions" recovered—one a dazed, confused self-worrying dejection with several suicidal attempts; another (an alcoholic), with a vivid depressive hallucinosis, and the third a depressive hallucinosis fifteen years after the injury, with recrudescence of pain. A fourth one (injury of left parietal bone) easily affected by drink, became depressed many years later.

From the group with immediate psychic symptoms, there are steady transitions to cases who practically showed a recovery from after-effects and a renewed manifestation of the "traumatic constitution" only on some special provocation. The patients are less restive; headache, localized or general, is apt to appear, or a feeling of confusion

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<sup>5</sup> Wildermut reports 8 cases of traumatic epilepsy, and 5 of them had only psychic equivalents. And Wagner found the psychic equivalents three times as frequent in traumatic epilepsy as in ordinary epilepsy in the cases of the German army.

<sup>6</sup> v. Murlalt (Allg. Z. f. Psych. LVII, p. 457-489), describes seven cases of typical catatonia of traumatic origin.



and of loss of memory and dizziness and peculiar sensations in the head. A sudden irritable manner and a tendency to excesses are noted.

Under paranoia he describes cases of unsystematized delusions with hallucinations and transitions to the systematized paranoia, the classical change of character (p. 87) with paroxysms; several of the cases referred to by him pass clearly to the epileptoid and epileptic states; and these again show transition to types akin to general paralysis or actual general paralysis.

The statistics of Kiernan (J. of N. & M. Dis. 1881, p. 445-452), and those of Crichton Brown with 32 cases give one strongly the feeling that the quality and conclusiveness of the individual record is much more important than the number of cases. This holds especially for the numerous cases of general paralysis which are found in many statistics. We know now that either the diagnosis was made erroneously or that in a large number of these cases syphilis was the potent cause.

Ziehen clearly distinguishes primary traumatic psychoses, secondary traumatic psychoses and the traumatic psychopathic constitution.

Immediately on awakening from the coma, or up to one week after the injury the patient develops innumerable hallucinations, disorientation, incoherence, dizziness, disorders of coordination, violent excitement and anxiety, a condition of acute hallucinatory paranoic dream-state. At times there is a marked hypalgesia, or general hyperæsthesia. The gait resembles that of intoxication. Intercurrent somnolence is not infrequent. Rises of temperature occur also without meningitis or focal disease. With the profound disorder of association is connected the marked amnesic defect which usually continues after the acute symptoms disappear. The actions, too, have usually a very characteristic color; impulsive violence and an aimless running about or escaping occurs besides catatonic states. Recovery is frequent. Yet, not infrequently a chronic mental change follows, corresponding to a secondary traumatic psychosis.

These secondary psychoses belong largely to the group of defect psychoses, i. e., they are characterized by an increasing defect of intelligence, memory and judgment. Hence the term traumatic dementia. Frequently this traumatic secondary dementia when it increases progressively simulates the picture of paralytic dementia; for it also shows paretic signs and defects of coordination (of speech, etc.). Even the autopsy findings may resemble those of paretic dementia. In other cases the secondary dementia remains stationary at a certain point; the patient is normal apart from a certain defect of judgment, a loss in complex and especially in abstract concepts and the loss of complicated tones of feeling.

In a last series of cases, we merely find the so-called "Traumatic alteration," i. e., there is no fully developed psychosis, but a careful comparison of the psychic condition before and after the accident shows nevertheless that numerous slight psychic changes have come on

since the injury. Those who knew the injured before, observe that he is more irritable and oppressed, tends to great vacillations of moods, tires more easily mentally, has experienced a slight loss of breadth of interests, quickness and far-sightedness of judgment and especially to alcohol. Physically one finds a tendency to headaches, attacks of dizziness (especially on stooping) and congestions. This gives a soil for other etiological factors. A slight influence which before the injury was borne without pathological reaction leads with this basis to a grave psychosis, or traumatic neurasthenia or hysteria may develop, and in at least 10 per cent epilepsy which hastens the decay of intelligence. From these psychoses we must separate the traumatic reflex-psychosis depending on some scar acquired in the injury. They are rather rare and have nothing to do with the commotion. Outside of traumatic neurasthenia and traumatic hysteria, traumatic commotion plays an essential rôle in 2-3 per cent of all admissions.

The section on traumatic constitution extends these remarks in a systematic manner. From the section on *Dementia Traumatica* I merely mention the differentiation from general paralysis. Ethical defects are not rare but usually not as grave as in the paralytic. The loss of memory and judgment too never is so profound. A typical period of exaltation is rare. Transitory confusional states are more frequent. The course becomes usually stationary. Hesitation and iridoplegia are very rare. In one case Ziehen saw absence of knee jerks from small hemorrhages in the lumbar cord. Besides some focal symptoms meningeitic symptoms may last for years, such as nausea and rigidity of the neck.

Kraepelin mentions especially the diminished psychical resistance, increased exhaustibility and distractibility, irritability and sensitiveness, diminished efficiency, difficulty of conception, of judgment, loss of interest. On this ground a paralysis-like condition may develop, or some accidental cause may determine another type of psychosis. The confusion immediately after the injury is one of difficulty of thought, remembrance, poor apperception, fabulation; moreover, irritability, obstinacy, restlessness, loquacity, poor insight into what is wanted.

Looking over our cases *etiologically*, we cannot fail to be impressed by the *concurrence of several etiological factors* in the greater majority. Even in the four cases of primary traumatic disorders, i. e., those which followed the injury immediately, constitutional peculiarity exists in two and alcoholism in one. A traumatic origin is claimed in case 16, with typical manic depressive insanity after the 26th year, traced to an injury shortly after birth; but here we also find an uncle with two attacks of

insanity. In cases 17, 18 and 19, grippe or some transitory febrile attack led to the temporary derangement. In several patients who developed mental disorders some time after the injury, we may speak of an intermediate symptom-complex of invalidism (more or less akin to what happens in traumatic neurosis). In case 20 alcoholism led to aggravation of the invalidism and reappearance of debilitating emissions which had troubled the patient a few years before the trauma and then had been connected with a transitory abnormal state. Cases 21, 22 and 23 show alcoholism at the bottom of the post-traumatic epilepsy or of epileptoid attacks; in case 25, syphilis and especially difficulty at home and of finding work can hardly be neglected. In case 26 blindness, and in case 27 constitutional underdevelopment are of importance, in the cases 6 and 7 alcoholism, in case 4 constitutional underdevelopment and heredity. This leaves but few cases in which traumatism as such is the sole agent in the etiological constellation. *The question then is: would the patient have developed the mental disorder without the injury? Does the mental disorder show any typical traits speaking for trauma?*

*To what extent do the forms depend on differences of make-up, and to what extent on differences of the form of damage?*

In dealing with this question we cannot be too reserved. There is no direct measure of the damage of a concussion as we have seen in the anatomical part. And the effect? It is most interesting to consider especially the so-called traumatic psychosis without actual involvement of the head, and for this purpose I have included the cases 29 and 30 in this series. Case 29 represents a traumatic neurosis. We might, perhaps, incriminate the molecular jars at the time of the explosion. Emotionalism, peculiar dazed actions, then a stupor; then after recovery a tendency to become shaky and dizzy; then a paranoic development with depression and subsequent enlistment; return in a tremulous apathetic condition resembling general paralysis, the whole distinctly allied to conditions of Dämmerzustand with two periods of amnesia, similar to an epileptoid change of consciousness.

In another case (31), with an electric shock, we find rather the "explosive diathesis" with reduction of sensibility in moral matters.<sup>7</sup>

To refer these symptom-complexes to molecular changes, although they are not sufficiently demonstrated, adds nothing to our knowledge, but is merely an unnecessary emphasis of the natural belief that every symptom must in some way depend on some defect of an organ. As long as even the plain epileptic attack is explained merely by words such as "discharge," and other similes, it is best to abstain from attempts at hypothetical explanations and to remain on the empirical ground of statement of facts when we deal with amnesias, hysteria, neurasthenia, epilepsy, the deliria and other forms of insanity. Instead of disturbing our mind over more or less fantastic hypotheses, we shall do better to search for greater accuracy and definition of fact. In the cases of traumatic origin we find *at least five directions in which we can push our clinical studies to greater precision* and usefulness for attempts at correlations.

1. Rieger's attempt at an *inventory of a patient's mental possibilities*, is a procedure which demands much time, but is a step towards a safe method. The case Voit, examined by Grashey, Sommer and Wolff, a man who developed a peculiar defect belonging to the field of aphasia, shows us that the study must not only cover the inventory of the available concepts and vocabulary, but especially the mechanism of their collaboration. This patient had a fracture of the skull, almost complete deafness of the right ear, total loss of smell, nearly complete loss of taste, and he merely saw motions of the hand with the right eye, while the left visual acuity was two-thirds and the visual field concentrically reduced. The right facial was paralyzed, the right hypoglossal paretic, the right skeletal muscles also. At first he misunderstood questions and answered them in a different sense. He recognized the meanings and use of objects, persons, verbs and adjectives. Yet he could not find the words on request, but would pick out the correct word from a series. Grashey showed that the defect was connected with a peculiar

<sup>7</sup> Jellinek (Virch. Arch. CLXX, p. 56) has recently studied these cases and those of lightning and the neurological and other effects are said to be "amply accounted for by hemorrhages, especially of the anterior horns and degeneration and destruction of ganglion cells."



difficulty of remembrance. The patient was not able to compound letters into words and parts of pictures when he saw them successively. The patient had, however, the ability to find the words by writing, even with the feet, hands or tongue. Fixation of these parts disabled him again—the writing was not preceded by a thought of what was to be written. On the other hand Voit was capable of the concept of a common denominator of two objects, although he usually could get at the word only by attempting to write. He showed a form of thinking without words. Moreover, he was unable to say from memory how many feet a horse had, what color blood had, or grass, although he knew the color when he saw the object, or at least could pick it out, or find it by writing as long as the object was before him. This case shows plainly that the inventory should cover not only the “dictionary,” as it were, but the methods of mental working.\*

2. *The study of the vasomotor neurosis* of Friedmann. Does the case present permanently or on special provocation:

Headache (usually diffuse and dull, a general pressure, rather infrequently referred to a special point).

Dizziness, especially on stooping or sudden changes of position, often accompanied by nausea.

Tendency to flush or get pale easily.

Intolerance to alcohol, strains and emotions such as annoyance over contradiction—often causing a general aggravation of the symptoms for days.

Intolerance to galvanization of the heat and compression of the carotids.

Occurrence of attacks of congestion, even amounting to pseudo-meningitis (painful rigidity of neck, etc.).

To these I should add extreme exhaustibility, and with our present means in measuring the blood pressure we further find a great variability of the pressure.

3. *The examination for the “explosive diathesis”* of Kaplan. Especially after the use of some alcohol the slightest often quite impersonal incident calls forth the most vivid effects of anger and the corresponding motor discharges; in the mildest

\* Wolff, G., Ueber krankhafte Dissociation von Vorstellungen, Zeitsch. f. Psychol. u. Physiol. der Sinnesorgane, Vol. XV.

degree merely an expression which is excessive and grotesque under the circumstances (with mimic, voice, extremities, etc.), in higher degrees acts of violence, at times leading up to a real epileptic fit. There is an excess in the reaction with inadequate adaptation to the situation, more and more remote from a well considered aimful act: approaching a pure psychic reflex act in the shape of an almost or entirely unmodified explosion not unlike a convulsion.

4. Frequently associated with the latter, but also occurring alone, without explosive traits, we found in our cases as a very important factor *all the possible degrees of episodes of more or less dazing and dream-states*; from a temporary dazed feeling to episodes of hysteriform or epileptoid absences. Apart from the subjective feeling of haziness, the characteristic trait is the occurrence of complete dream interpretations and peculiar fabrications, which color the primary traumatic insanity as well as the subacute and episodic types; and even the paranoid type (case 17). They are by no means limited to traumatic states, but also observed in brain-tumor, brain-syphilis, after insolation, which after all belong to similar types of brain alteration. Kaplan, too, observed "attacks of anxiety, at times with hallucinations, states of hallucinatory confusion, and also relatively orderly, more automaton-like actions frequently with a merely dreamy perception and utilization of the outside world and more or less extensive haziness of memory; further simple absences and syncopes, epileptic fits in 34 per cent, attacks of dizziness (often with chromatopsia and tinnitus) in 43 per cent of the cases; rush of blood, sudden changes of color, hyperdrosis, attacks of salivation, hemicranic headache, elementary hallucinations. All these transitory complicated and simple phenomena occur both spontaneously and with physical and mental exertions, in affective excitements, with even moderate use of alcohol, in heat, and especially on sudden changes of position of the body," i. e., with Friedmann's vaso-motor complex. I am inclined to include here also the so-called reflex-psychoses described by Köppe (Kopfverletzungen als periphere Ursachen reflectirter Psychosen: Dt. Arch. f. Klin. Med., 1874), which depend on definite peripheral irritations such as painful scars, and can hardly be kept wholly apart, as Ziehen wishes, from the cases with direct cerebral irritation by depres-

sions of the skull or clots, such as in my case T. (3). These are the cases giving an opportunity for operative interference.

5. Finally we must establish the etiological constellation:

a: Types of insanity in the family;

b: Constitutional peculiarities and predisposition in the patient;

c: Complications with alcoholism, syphilis, exposures and excesses;

d: The extent of the injury, its immediate after-effects; and especially also the extent of the mental shock;

e: The influences which are found to aggravate the symptoms or to elicit post-traumatic reactions, especially the factor of litigation and of invalidism and its consequences.

Such inquiry in these five directions may meet with many cases in which the facts are strongly interwoven. It would, therefore, be futile to try and make a rigid classification of the cases along these lines. The purpose of these subdivisions is to get definition where it is possible to get it; to furnish a method and direction of examination and to avoid oversights. With all these precautions, it would seem probable, that in the large number of cases of truly traumatic origin we should find a combination of facts sufficiently characteristic to decide the frequently important diagnostic medico-legal and therapeutic questions in such cases.

The question whether there is such a thing as traumatic insanity is easily answered on the basis of our material. We admit the term as a generic one. Where we have collected the facts, we do, however, well to give a brief descriptive designation for the mental picture, and, in addition, an expression of the relative importance of the etiological factors. *Psychiatry will never progress unless its diagnoses mean to be summaries of the available facts arranged according to their pathological or nosological bearing, instead of the traditional ill-defined terms.* And where our nomenclature is hazy, or a record made with insufficient regard for differentiations, nothing short of a concise rendering of the findings in plain language should be considered good enough, instead of a term which has too many connotations and may be used differently by writers and readers. In the absence of such accounts a reclassification of the statistics in the literature has no sense.

Summarizing our experience concerning clinical distinctions, we should discourage the hope for a strict classification, but suggest as salient types, and as a means to keep order among the facts:

1. *The direct post-traumatic deliria with the following subdivisions:*

- a: Preëminently febrile reactions.
- b: The delirium nervosum of Dupuytren, not differing from deliria after operations, injuries, etc.
- c: The delirium of slow solution of coma, with or without alcoholic basis.
- d: Forms of protracted deliria usually with numerous tabulations, etc., (with or without alcoholic or senile basis).

2. *The post-traumatic constitution:*

- a: Types with mere facilitation of reaction to alcohol, grippe, etc.
- b: Types with vaso-motor neurosis.
- c: Types with explosive diathesis.
- d: Types with hysteroid or epileptoid episodes with or without convulsions (such as most reflex-psychoses).
- e: Types of paranoic development.

3. *The traumatic defect conditions:*

- a: Primary defects allied to aphasia.
- b: Secondary deterioration in connection with epilepsy.
- c: Terminal deterioration due to progressive alterations of the primarily injured parts, with or without arteriosclerosis.

4. *Psychoses in which trauma is merely a contributory factor:*

- a: General paralysis, with or without traumatic stigmata.
- b: Manic-depressive and other transitory psychoses, catatonic deterioration and paranoic conditions, with or without traumatic stigmata.

5. *Traumatic psychoses from injury not directly affecting the head.*

The *outcome* has evidently proved less gloomy in my cases than in the available statistics of Guder. I do not feel, however, that this question is settled by my experience, since many of the cases are of too short observation. The cases of Brower (Traumatism in Relation to Insanity, Alienist and Neurologist, 1883, IV, p. 646), and the case communicated by Dr. H. P. Frost (Am. Jour. of Insanity, April, 1903), are good instances of



what precaution is needed in the prognosis as well as in the use of even professional reports of an injury (concerning the sloughing away of brain substance). In Frost's case there were no symptoms except a sense of fullness in the head for 26 years after the injury, when a progressive slow development of palsy of the left arm and leg and of the right side of the face came on, together with emotionalism and irritability. Thirteen years later the patient was childish and irritable, but not in very deep dementia. The extensive organic nervous symptoms are partly accounted for by the anatomical finding—a hemiatrophy of the cerebrum due to sub-cortical degenerations with cavity formation, without arteriosclerosis. Further, there are obviously independent degeneration, of Goll's and Gowers' tracts in the cord.

The possibilities of *therapeutic interference* are not very great apart from what is indicated symptomatically. The most hopeful cases would seem to be those of reflex-psychoses, to which I should approach our case 3. There are in the literature a number of successful operations in such cases. The difficulty would naturally be the localization of the irritating factor and the prognosis would depend further on the multiplicity of lesions in the brain. Our case shows, however, plainly that *not only depression of the skull should be looked for*, but also clots, even where no injury of the skull is noticeable. Whether case 4 would have been operable in earlier days is uncertain. On the whole a chance should always be taken where there is sufficient evidence directing to a place of trephining; and in case of doubt, multiple trephining should be rather recommended than condemned. I consider this advice in keeping with the experience of Spiller concerning operation for the immediate effects of trauma (1902 International Clinics, pp. 102-111.)

M. Allen Starr refers to the cases of Dr. Carlos F. MacDonald (Am. Journal Med. Sci., July, 1886)—two cases of traumatic epilepsy, one of which recovered completely, the other with partial dementia—and Park (Med. News, December 10, 1892—2 cases with recovery); further, Frank and Church (Amer. Jour. Med. Sci., July, 1890), give a report of a young woman who after a head-injury became delirious, grew worse, suffered from the “ordinary symptoms of mania,” which became chronic and went on to complete dementia. She was de-

structive at times, noisy, but for the most part sat idly silent and stupid. On removal of the depression over the right parietal bone a considerable amount of cerebro-spinal fluid gushed out. Improvement and a relapse followed. A second operation was more extensive, and followed by improvement (reported 1 month after operation).

Doctor Keen's operation in another case of depression was followed by only temporary improvement. Guder's case Jena, (1886), made a relative recovery; two cases of Wherry recovered (Brit. Med. Journal, 1880, II, p. 622, and 1883, I, 767); also one case of Skae (J. of Mt. Sci., 1874, p. 552); one of Emmert (1851), one of Wigand (Krafft-Ebing), one of Price (Pacif. M. S. Journ., 1885-86, pp. 101-103), one of Molliet (Lyon, 1881), Bacon (Journ. Mt. Sci., 1880-81, pp. 551-554), Briggs (J. Mt. Sci., 1881, p. 67-70), McCormack (N. Y. Med. Rec. XXIII, 1883), and one of Kummel (N. Cbl.; 1889, p. 902). The latest case of Shield and Shawe (Lancet 1903, I, p. 431), is described as one with symptoms of early general paralysis of the insane. He showed the vasomotor neurosis and epileptoid haziness. Removal of a depression of the left frontal region brought recovery.

Where no indications for operations are present the avoidance of alcohol and irritating factors is of decided importance.

## THE SYMPTOMATOLOGY AND TREATMENT OF TRAUMATIC INSANITY.

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The forms of diseases of the mind that have their origin in the effect of injury to the brain, direct or indirect, are quite varied, and I attempt a description of them with much hesitation and a consciousness of my inability to fully, or I fear, satisfactorily accomplish it.

I shall divide the forms of traumatic insanity into two classes. To the first class to be considered belong those that result directly from the injury, where this is the direct and sufficient exciting cause, the insanity either following immediately after the injury, or being associated with symptoms developing from that date, or being of such a character in itself or following an injury of such character, although arising months or years later, as to justify the conclusion of a direct causal relation between them. In all such cases there is usually a reasonable proportion between the injury itself and the mental disease that follows, the latter being also of such a character as can be reasonably attributed to such an origin. I may premise the general statement, however, that the susceptibility of a given brain organization to the development of insanity from traumatic causes is, to a great extent, measured by its degree of instability either original and congenital or acquired through some prejudicial influence either of environment or habits of life. In other words, all brain injuries of a given character do not produce insanity in equal degree or of like character in all cases.

Predisposition is a considerable factor in the causation in these cases as well as in those of non-traumatic origin. I believe, too,

that the tendency is to overestimate the effect of trauma as a cause of insanity. That it not infrequently does produce mental disorder is quite true, but the tendency almost invariably is for the friends to magnify the influence of any previous head injury in a given case and to minimize the influence of predisposing causes or of other exciting causes, such as bad habits, unfavorable environmental conditions, or moral influences. The insanity that results from this class of head injuries may develop immediately after the injury and accompany or follow immediately after the subsidence of the symptoms which are physical evidences of the trauma, such as meningitis, cerebritis, or destruction or loss of tissue. It may take the form of continuous delirium with hallucinations or delusions, and pass away with the subsidence of the inflammation or of the primary shock, such conditions being in fact scarcely true insanities and only justly so-called when of long duration or accompanied by lapse of memory or mental perversion beyond that of temporary fever delirium. In other cases the insanity so developing may be permanent. I have seen persistent delusional insanity, continuing for years and until death from intercurrent physical disease, follow directly a blow to the head without fracture, where the autopsy revealed evidence of extensive pachymeningitis externa. In another case extreme and permanent dementia followed injury to the head, the patient sitting about in fixed attitudes, and uniformly in the same place. No autopsy was made in this case, but there was no evidence of fracture.

Skæ's well-known case may also be mentioned, where a blow to the head causing a fracture of the skull with depression produced almost immediately marked changes in disposition and moral characteristics, the patient, from being cheerful, of happy disposition, attentive to family and business obligations, becoming the reverse—irritable, morose, immoral and generally unreliable. The operation of trephining, with elevation of the depressed bone, restored the former characteristics and a condition of usual mental health.

Epilepsy not infrequently results immediately from injury to the head. I have several such patients under treatment at present. Usually the mental disorder that results is not different in character from that which follows epilepsy from other causes. The following case is interesting from the fact that recovery



from both the epilepsy and insanity followed within a comparatively short period. A gunner from the U. S. Navy, 29 years in the service, about fifty years of age, fell about 15 feet on the deck of a ship, striking his head. He was unconscious for most of a day thereafter. He was then able to attend mess and to discharge some of his duties, but felt weak, had more or less confusion of mind and a bad feeling in his head. A few days later he had a convulsion resembling epilepsy, and within two or three weeks two or three other attacks of like character. He became more confused, at times considerably excited with fleeting delusions of suspicion, and was ordered to the hospital. Within six weeks from the date of the injury he had apparently recovered, had no recurrence of convulsions, was rational in conversation and action, and gradually regained his physical strength. This case was uncomplicated by excessive use of alcohol or any other exciting cause.

I recall another interesting case of a chorister boy who was struck on the head, during service in church, by a heavy incense vessel. He was knocked down by the blow and was unconscious for a half hour or so. Almost immediately thereafter he had severe headache, a bad feeling in his head otherwise, showed some change in disposition, was more irritable, was somewhat lethargic and had some difficulty in accomplishing his ordinary work. He soon developed attacks of maniacal excitement, resembling psychical epilepsy, coming on suddenly except that they were preceded by severe headache, the maniacal attacks lasting an hour or so, later continuing for a day or more, and terminating with sleep. He was entirely delirious and incoherent during the attacks. These recurred more frequently until they came every few days. He showed a marked anæmia also, which became pronounced within a few months, his complexion being quite waxy in appearance. The scar on the head was sensitive to pressure and trephining was advised. The bone was not injured; there was no adhesion of the dura and no evidence of adjacent disease. There was some bulging of the dura and no pulsation when first exposed. There was a general leakage of serum and the next morning pulsation was present. The scalp healed after some suppuration and the patient had no return of the maniacal attacks, became gradually of ruddy complexion and

within a few months was the picture of a healthy, vigorous, German boy. He had no convulsions at any time.

Various forms of mental disturbance have been reported as following injury to the head after several months or years. I do not believe that these show any especial peculiarities in their symptomatology. Bevan Lewis states that 20 per cent of cases of recurrent insanity in males have a traumatic origin. My experience, however, does not bear out this statement. I believe in most cases there will be some other evidence of damage to the brain in the interim, such as severe or frequent headache, unusual or unpleasant sensations in the head, an intolerance of heat, and of alcohol, more or less change in disposition, greater irritability, or other evidence of disturbance of brain functions. The insanity which develops may take the form of depression, of systematized and primary delusions, maniacal excitement, progressive dementia or even paresis.

Where insanity develops years after a head injury, without evidence of brain disorder in the interim, I question whether we are justified in ascribing the attack primarily to the trauma. Doubtless it may in such cases increase a predisposition already existing and render other exciting causes more potent for evil. This is especially true of the effect of alcoholic indulgence, a smaller amount producing mental disorder in some such cases after head injury and tending to more serious forms of mind disturbance.

I find a great diversity of opinion among authors as to the existence of a special symptomatology of insanity following head injuries. Bucknill and Tuke believe there is no special form of insanity so produced in which the nature of the cause is shown in the symptoms. Krafft-Ebing thinks in all cases there must be a predisposing cause in addition. Clouston states that the most characteristic are accompanied by motor symptoms, shown either by affection of speech or slight hemiplegia, general muscular weakness or convulsions. Such symptoms as headache, vertigo and hallucinations are also frequent. The mental symptoms, he thinks, tend to show an irritable or impulsive dementia; or fixed delusions. Spitzka says that lapses of memory of long duration may follow head injury and may recover or pass into permanent deterioration. He holds that distinctive traumatic insanity is developed on a basis of trau-

matic neuroses. These we will consider later. According to Berkley all injuries to the skull or brain may be followed soon or remotely by progressive dementia, in late cases the trauma causing a morbid process which starts from the point of injury and gradually extends to the brain and meninges. He thinks that trauma of slight degree may cause periodic insanity, circular or maniacal in character. He also states that the degree of insanity following head injury depends largely upon the degree of instability of the nervous system.

Defendorf says that symptoms develop gradually a few weeks or months after the injury and consist chiefly of despondency, with anxiety, fever, loss of power of physical and mental resistance and inability to undergo strain. Hypochondriacal tendencies are frequently noted. Brower and Bannister state that head injuries are less liable to develop actual insanity than to produce neurasthenic and hysterical symptoms. Chase says that Mickle gives 280 cases of paresis out of 4284 as due to traumatism of the head; 97 of these were said to be due to sunstroke; he does not differentiate the symptomatology.

Kirchoff says that, when following immediately after the head injury, there are usually accompanying headache, vertigo, hallucinations, sensory and motor disturbances and paralyses. Slowly developing cases show irritability and weakness often from the start, and sometimes epileptiform convulsions; they are easily exhausted and have diminished resistance to alcohol.

Blandford does not differentiate traumatism as a cause nor describe any special symptomatology. Regis gives no special symptoms as due to traumatic causes. Griesinger holds that injury to the head is of great importance as a cause of insanity and may produce dementia with or without maniacal excitement. It may appear at once or follow two or three years later. He quotes Schlager as stating that of 500 such patients 49 were found in whom the development of the disease stood in direct relation to the consequences of a concussion. In 21 the concussion was followed by immediate loss of consciousness, in 16 by simple mental confusion, in 12 by dull pain in the head. In 19 the mental disease began within one year, but in the majority the commencement of the insanity dated from four to ten years after the injury. In 18 cases there was dullness of hearing, in 20 great irritability and tendency to violent outbursts.

In 14 suicidal tendencies were present. Weakness of memory and confusion of mind were not infrequent; 7 were cases of paresis.

The second class of cases resulting from trauma embraces those in which there is no reasonable proportion between the injury or shock, either physical or mental, and the mental disorder which follows. As far as there is an injurious effect shown at the time of the accident or following soon thereafter, it is almost wholly psychic or mental in character, the physical injury being slight and inconsequential. In most of these cases there is a marked instability of the nervous system normal to the individual. Sometimes there is a decided hysterical tendency. Sometimes the susceptibility is shown only by an introspective tendency and a disposition toward melancholy. As already stated, the mental disorder is of the nature of a mental shock and this is the more pronounced, the more acute the symptoms and when they follow immediately after the accident or injury. This shock may amount to sudden and complete confusion of mind or amentia, which may be of short duration or last for weeks and even months. In rare cases it may even be permanent, although much less likely to follow shock of a physical character or origin than that due to mental or moral causes. In the extremely susceptible, attacks of acute maniacal excitement, hysterical melancholia, or hypochondria may follow immediately after a very slight injury. In other cases the symptoms develop more slowly, but are always connected more or less directly with the injury. The symptoms in such cases are nearly always quite characteristic. There is first a moderate shock at the time of the injury, but not sufficient to show mental symptoms. Following this there is a marked tendency to concentrate the attention on the accident and to watch for injurious effects of it. The individual often becomes extremely nervous, has more or less insomnia, cannot fix his attention on his work, often has considerable digestive disturbance, the *ego* rises in importance in his mental operations, and there is more or less despondency and emotional depression. Often this disturbance takes the hypochondriacal form. When well-marked mental disorder finally develops, it is usually more or less hysterical and hypochondriacal in character, and is shown rather by disturbance of the emotions than by fixed delusions. Fleeting



hallucinations may appear and in extreme cases there may be much confusion and lethargy in mental operations.

It will be noted from this description that many of the symptoms belong to the neuroses rather than the psychoses. The two are intermingled in nearly all cases, however, and even in the pure functional neuroses there is a psychic disturbance also. The relations of the *ego* to the environment are disturbed, the judgment is at fault, the emotions are more or less deranged and the mental strength is usually materially diminished.

In the great majority of such cases there is also the complication of a prospective damage suit. In some this is the principal cause of the disorder. I have known it to cause hysteria major, with violent convulsions, general anæsthesia and violent emotional outbursts. The settlement of the suit will nearly always favorably modify, if not entirely remove, the disturbance, and it is not necessary that there should be voluntary malingering. Often there is entire honesty on the part of the patient, but the influence of the concentration of the attention on certain subjects in a person of susceptible temperament is sufficient to produce great exaggeration of the symptoms and finally decided mental disorder.

# SURGICAL EXPERIENCES IN INSANITY OF TRAUMATIC ORIGIN.

## CASES COLLECTED AND TABULATED

*By C. B. Burr, M. D.,  
Flint, Mich.*

It having been found impracticable to obtain from some surgeon of eminence a paper on the subject of Surgical Experiences in Insanity of Traumatic Origin, I have, in order that the symposium on traumatic insanity may be more complete, collected and tabulated a few cases occurring in hospitals for the insane in this country. Considering the very short time given to reporters to comply with the request, the number of cases thus brought to light has been surprisingly large, and I take this opportunity to express obligation for the many cordial and prompt responses to my circular letter to superintendents:

### NUMBER OF OPERATIONS REPORTED, TWENTY-THREE.

|                       |   |                        |   |
|-----------------------|---|------------------------|---|
| Dr. Guth .....        | 2 | Dr. Sprague .....      | 1 |
| Dr. Witte.....        | 2 | Dr. Bartlett.....      | 1 |
| Dr. A. E. Macdonald . | 1 | Dr. A. W. Hurd.....    | 1 |
| Dr. Wm. Noyes .....   | 1 | Dr. E. A. Christian... | 1 |
| Dr. Allison .....     | 1 | Dr. Macy.....          | 4 |
| Dr. Blumer .....      | 1 | Dr. Moore .....        | 2 |
| Dr. Edwards.....      | 3 | Dr. George S. Adams.   | 2 |

Sex—Male, 19; female, 1; not stated, 3.

### FORM OF DISEASE.

#### *Melancholic Type, 2.*

- 1 Dura adherent to inner table. Two operations. Improvement from first; recovery after second.
- 2 Pathological findings, none. Death.

#### *Confusional Type, 2.*

- 1 Sub-pial cyst evacuated. Decided improvement.
- 2 Pathological findings, none. Mental symptoms aggravated.

#### *Maniacal Type, 8.*

- 1 Bone thickened. Fluid deficient. Mental condition unimproved.
- 2 Excess of serum. Decided improvement.

- 3 Evacuation of cyst filled with serous fluid. Immediate improvement.  
Relapse in five months.
- 4 Pathological appearances unknown. Negative results.
- 5 Dura bulging. No cyst. Results negative.
- 6 Membranes adherent. Improvement, then mental deterioration.
- 7 Button, double convex in shape, removed. Dura adherent to bone.  
Recovery complete.
- 8 Dura bulging. Gradual improvement until recovery.

*Epilepsy, 8.*

- 1 Trephining. Death soon after operation. Pathological findings unknown.
- 2 Trephining. Death soon after operation. Pathological findings unknown.
- 3 Pathological appearances unknown. Recovery.
- 4 No pathological findings. Slight improvement.
- 5 No pathological findings. No improvement.
- 6 No pathological findings within skull. No improvement.
- 7 Membranes adherent. Sacculated condition of sinus. Temporary improvement.
- 8 Operation recent. Result undetermined.

*Jacksonian Epilepsy, 1.*

- 1 Trephining. Death soon after operation.

*Unassigned, 2.*

- 1 Pathological findings unknown. Results negative.
- 2 Pathological findings unknown. Results negative.

## PERCENTAGES BASED UPON TOTAL NUMBER OF CASES REPORTED.

|                           |                |
|---------------------------|----------------|
| Recoveries .....          | 4, or 17.391%  |
| Melancholic .....         | 1, or 4.347%   |
| Maniacal .....            | 2, or 8.694%   |
| Epilepsy .....            | 1, or 4.347%   |
| Decided improvement ..... | 2, or 8.695%   |
| Confusional .....         | 1, or 4.347%   |
| Maniacal .....            | 1, or 4.347%   |
| Result undetermined—      |                |
| Epilepsy .....            | 1, or 4.347%   |
| No improvement .....      | 16, or 69.565% |

## PERCENTAGE OF RECOVERIES IN EACH FORM.

*Melancholic Type, 2.*

|                  |             |
|------------------|-------------|
| Recoveries ..... | 1, or 50.0% |
|------------------|-------------|

*Confusional Type, 2.*

|                           |             |
|---------------------------|-------------|
| Decided improvement ..... | 1, or 50.0% |
|---------------------------|-------------|

*Maniacal Type, 8.*

|                           |             |
|---------------------------|-------------|
| Recoveries .....          | 2, or 25.0% |
| Decided improvement ..... | 1, or 12.5% |

*Epilepsy, 8.*

|                           |             |
|---------------------------|-------------|
| Recoveries .....          | 1, or 12.5% |
| Result undetermined ..... | 1, or 12.5% |







## RESULTS OF BRAIN SURGERY IN EPILEPSY AND CONGENITAL MENTAL DEFECT.

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*By William P. Spratling, M. D.,  
Medical Superintendent of the Craig Colony for Epileptics, Etc.,  
Soneya, N. Y.*

Since surgical intervention is practised in epilepsy for the possible relief of conditions of certain types, and in idiocy and imbecility for the possible relief of certain conditions of other types, we can readily divide the subject into two parts, taking up epilepsy first. The limit on time requires that both be treated in a greatly abridged form.

### THE TYPE OF EPILEPSY PROPOSED FOR SURGICAL TREATMENT SHOULD BE SPECIFIED.

Used without qualification, the word "epilepsy" carries little meaning to the analytical student of the disease. So varied is its etiology, and so numerous are its types, that the synthetical designation of "epilepsy" only has but little value.

In some epilepsies medical treatment promises most; in others, surgical; and it is well to differentiate the cases of each at the outset, doing this broadly, if not specifically, always reserving, however, specific distinctions before undertaking the surgical treatment of any particular case.

We may first lay down this general rule: The epilepsies that most seriously impair the conscious operations of the mind are less amenable to treatment by the surgeon than the epilepsies that leave the mind most largely unaffected.

There is a vast difference between fits of different types in the degree in which they affect the mind. Some blot it out in a flash, completely and instantaneously; others blot it out gradually; others impair it in various degrees without effecting its

complete destruction at any time during the fit; while still others do not even disturb it in an appreciable degree, the latter being the case with the milder monospasms, Jacksonian in character.

This being true, we first single out the epilepsies that mostly affect the motor side of the body as promising most for surgical treatment, to the exclusion of those that invade the psychic side to the greatest degree.

We may illustrate this by saying that in grand-mal convulsions in which consciousness is destroyed through the intensity of the "explosive discharge" or through the sudden "snapping of restraint" in the motor zones, surgical measures are far more rational than when the attacks, being psychic, are silent in form, causing no commotion in the muscular system and no change in body posture.

Operations for the possible relief of epilepsy should be confined to cases in which the attacks are grand-mal or Jacksonian, and will seldom be found of any use in petit mal or psychic types.

This takes no account of partial, reflex, or other rudimentary forms of the disease, many of which are well adapted to surgical treatment, being due as they are to such causes as old cicatrices, an adherent prepuce, foreign growths in the nose, middle-ear disease, and other peripheral organic conditions, including recent injuries to the brain in which the early repair of the damage removes the cause of the attacks.

#### RESULTS OF BRAIN SURGERY IN THIRTY-THREE CASES OF EPILEPSY.

The types of epilepsy in which surgical intervention is oftenest a rational proceeding comprise the bulk of all the epilepsies. In 1325 cases that have come under my observation during the past eight years, 774 were grand-mal and 9 Jacksonian; together a little over 60 per cent of the gross number. We do not wish to be understood as claiming that 60 per cent or over are subjects for surgical treatment; we mean that there are 60 per cent only in which some cases will be found that surgery may benefit.

Before operating in any case, the patient should be carefully watched so that the exact order of invasion, the precise manner in which the fit begins, the manner in which it extends, involv-

ing one group of muscles, one part of the body after the other, should be carefully observed on repeated occasions, together with the nature, frequency and recurrence of the aura; for all these constitute valuable signs that help to guide us to the cerebral seat of the disease. The study of such symptoms to their full advantage demands a knowledge of cerebral localization we cannot, either as epileptologists or as surgeons, fail to acquire.

We can form, in a measure, some idea of the value of brain surgery in epilepsy by noting the results in the 33 cases presented at this time. All of them have been under my daily observation for periods varying from one to eight years. Five of these operations were performed at the colony in cases selected with great care. The remaining 28 were operated on prior to their admission.

Case 1.—Male, aged 29 years. Family history negative. Epilepsy began at 17 years. Supposed to be caused by malaria. Trephined, October, 1895, six years after the first seizure.

Result: No improvement.

Case 2.—Male, aged 31 years. Father tuberculous; otherwise family history negative. Epilepsy began at 13 years. Supposed to have been caused by trauma to head. Trephined in August, 1894. Right motor region. Operation 11 years after the onset of the epilepsy.

Result: No improvement.

Case 3.—Male, aged 22 years. Family history negative. Epilepsy began at 15 years. No assigned cause. Patient grew steadily worse and had as many as 24 attacks daily. Trephined in October, 1897, three years after the onset of the epilepsy. Since the operation the attacks have been less frequent, but more severe. Trephined again at the Craig Colony in April, 1900. His attacks had been growing steadily worse. A portion of thickened and adherent dura was removed. Since the last operation his attacks have been markedly lessened in frequency. On large doses of bromides ever since the operation.

Result: Great decrease in frequency and severity of attacks.

Case 4.—Male, aged 31 years. Mother's father insane and syphilitic. Mother's sister committed suicide. Brother and sister died in convulsions. Paternal relatives intemperate. Epilepsy began at age of 17 years. Supposed to be caused by an injury to the head when 7 years old. Trephined during 1895, eight years after the onset of the epilepsy.

Result: No improvement.

Case 5.—Male, aged 38 years. Maternal grandmother had epilepsy. Assigned cause of epilepsy, heredity. Trephined over the left motor region in 1893, fifteen years after the onset of the epilepsy.

Result: Slight temporary benefit.



Case 6.—Male, aged 8 years. Family history negative. Epilepsy began at 5 years. Supposed to have been due to a fall on the head. Two months after the fall he had the first attack. Attacks increased in frequency and at the age of 5 years he was having 50 attacks a day. Two years after the injury he was trephined over the right motor region. Since the operation he has had no attacks during the daytime.

Result: Decrease in number of attacks.

Case 7.—Male, aged 30 years. Mother rheumatic. Father inebriate and died of tuberculosis. Epilepsy began at 21 years. Assigned cause, injury to left side of the head. Was run over by a wagon. Two weeks later he had the first attack. Attacks at first 3 or 4 daily. One week after the first attack he was trephined. Since the operation his attacks have been about 20 each month.

Result: No improvement.

Case 8.—Male, aged 19 years. Family history negative. Epilepsy began at 11 years. Was struck on the head with a bale-stick and had a severe convulsion half an hour later. Second attack occurred one month later and then they occurred with increasing frequency. Trephined in 1896, three years after injury. No benefit as the result of the operation. In April, 1900, he was trephined again at the Craig Colony. This time the opening was made over the left parietal bone, as this was the side injured. (The first operation was performed on the right side.) No adhesions nor gross pathological changes were exposed. He has about 4 grand-mal attacks each month at present.

Result: No improvement.

Case 9.—Male, aged 20 years. Family history negative. Epilepsy began at 7 years. Supposed to be due to an injury to his head, which occurred when he was 3 years old. Trephined in February, 1899, 16 years after the injury which was the supposed cause of his epilepsy. Attacks at first were all psychic, but gradually have changed to grand-mal.

Result: No improvement.

Case 10.—Male, aged 20 years. Mother died of tuberculosis. Maternal grandmother and aunt died of tuberculosis. Epilepsy began at age of 12 years. Assigned cause, a penetrating wound of the skull caused by a nail when 8 years old. Four years after the injury he had the first attack. Trephined over the left parietal region in 1899. Trephined again at the Craig Colony in November, 1900, over the same area as at first operation. Thickened dura removed and gold foil inserted.

Result: No improvement.

Case 11.—Male, aged 36 years. Father inebriate. Maternal uncle and aunt insane. Mother and grandmother had heart disease. Epilepsy began at 34 years. Supposed to be due to trauma to head at the age of 23 years. Claims he had a fracture of the skull at that time. In July, 1898, he fell from a ladder and had a convulsion 12 hours later. Since then he has had attacks every 6 weeks. In September, 1899, he

was trephined over the left frontal region at the Presbyterian Hospital, New York. Six weeks after the operation he had another attack. In March, 1901, he was placed on bromide treatment and during the six months since that time he has had no attacks.

Result: Temporary improvement, probably not due to operation.

Case 12.—R. J. Mc., male, aged 11 years. Mother neurotic. Maternal grandmother had 2 strokes of paralysis. Epilepsy began at 8 years. In January, 1898, he fell 8 feet from a shed and struck the right side of his head. Had a convulsion the same day he met with the accident. In April, 1900, over two years after the accident, he was trephined over the right side of the head at the seat of the injury.

Result: No improvement.

Case 13. J. S., male, aged 31 years. Nothing known of family history. Epilepsy began at age of 19 years. Supposed to be caused by yellow fever, contracted while in Brazil in 1891, since shortly after this he had his first convulsion. In 1893 he was trephined over the right frontal region, 2 years after the onset of the epilepsy.

Result: No improvement; attacks more frequent after operation.

Case 14.—W. F. C., male, aged 20 years. Family history negative. Epilepsy began at age of 15 years. At age of 5 years he was pushed off a wagon and injured his spine. Had first attack one month after the injury. In 1897 he fell from an engine and remained unconscious for some time. In September, 1900, he was trephined, 4 years after the onset of the disease.

Result: No improvement.

Case 15.—E. K., male, aged 15 years. Family history negative. Epilepsy began at 6 years. Assigned cause, trauma. He was hit on the head with a shovel about one month before the first attack. Had attacks every 2 or 3 days. In January, 1901, he was trephined over the site of the injury. Operation 9 years after the injury. Since the operation the attacks have been more frequent and severe.

Result: No improvement; disease exaggerated.

Case 16.—J. M. P., male, aged 19 years. Family history negative. At age of 6 years he was struck on the head by a train. Eight years after he had the first convulsion, and he has had them about every 10 days since. In January, 1900, he was trephined over the site of the injury. Operation 4 years after the onset of the disease. Attacks have been worse since the operation.

Result: No improvement; disease exaggerated.

Case 17.—Male, aged 29. Family history negative. Epilepsy began at age of 21 years. In October, 1893, he was thrown from a wagon and struck on the back of his head. Two years later he was trephined and following the operation he remained free from seizures for four months. In February, 1901, he was trephined again and more bone removed. Has had severe pains in head since the last operation and the epilepsy is unimproved.

**Result:** No improvement.

Case 18.—N. W., female, aged 20 years. Family history negative. Epilepsy began at age of 13 years. Fifteen months prior to the first seizure she fell on the ice and struck on the right side of the skull. In November, 1894, she was trephined over the left parietal bone. During the five months following the operation she had no seizures. Attacks at present 4 or 5 per month.

**Result:** No permanent improvement; some temporary.

Case 19.—C. M. S., female, aged 27 years. Family history: paternal great-grandfather and grandfather insane. Two maternal aunts epileptic. Father inebriate. Maternal uncle died insane. Mother has been epileptic since 16 years of age. Patient's epilepsy began at the age of 11 years. Assigned cause, heredity. At the age of 20 years she was trephined over the motor region of the left side. Operation 9 years after the onset of the disease. Had no attacks for one year following the operation. Since that time the attacks have returned.

**Result:** No permanent improvement.

Case 20.—J. D. R., male, aged 38 years. Family history negative. Epilepsy began at 27 years. Assigned cause, injury to the head by being caught between two ice wagons. Eight years after the onset of the epilepsy he was trephined over the right Rolandic region.

**Result:** No improvement.

Case 21.—S. S. M., male, aged 22 years. Family history unknown, except that all (?) paternal relatives were intemperate. Epilepsy began at 11 years. Supposed to be due to injury to the head by a kick from a horse. He was trephined over the seat of the injury and the dura found thickened.

**Result:** No improvement.

Case 22.—Female, aged 8 years. Father intemperate. Epilepsy began at age of 2 years, following an infantile cerebral palsy which was the cause of her epilepsy. At the age of 4 years she was trephined. Skull very thick. Operation 2 years after the onset of the epilepsy.

**Result:** No improvement.

Case 23.—Female, aged 38 years. Family history unknown. Epilepsy began at the age of 8 years. At the age of 8 years she fell down stairs and was also injured by a runaway horse. She had spasms immediately following the latter accident and remained in an unconscious condition for 3 days. She was trephined over the left parietal bone 3 days after the injury. The convulsions continued with varying frequency until she was 13 years old, when she had immunity from them until 30 years of age. At the age of 30 years the spasms appeared again and she has had them at various times until April, 1900. During April, 1900, she was operated upon for a cystic uterus. The uterus was removed with the appendages. There was an imperforate cervix and the uterus had become a retention cyst. She made an uninter-

rupted recovery from the operation and since that time she has had no return of the convulsions.

Result: No attacks for 5 years; cure probable.

Case 24.—F. F., female, aged 9 years. Family history unknown. Epilepsy began at the age of 3 years. No assigned cause. At the age of 6 years she was trephined over the left parietal bone.

Result: No improvement.

Case 25.—A. S., letter carrier. G. M. Onset at 32. Multiple sclerosis. Trephined June, 1901; left parietal region (in Syracuse).

Result: No improvement.

Case 26.—S. V., aged 20. No occupation. Epilepsy of 6 years' duration. Has right hemiplegia. Jacksonian type. Trephined by Dr. Gerster at Mt. Sinai Hospital, Nov. 18, 1901;  $2\frac{1}{2} \times 2\frac{1}{2}$  inches of bone removed.

Result: No improvement.

Case 27.—G. D. B., 40. Laborer, married. Onset at 39. Family history negative. Cause (?) G. and P. M. attacks frequently. Right arm and leg most frequently affected. Trephined in Syracuse. Attacks occurred again 12 days after operation. Operation six months after injury to head caused by a falling stove pipe.

Result: No improvement.

Case 28.—W. B., 10. Family history negative. Epilepsy for 9 years. Right hemiplegia. G. M. attacks beginning in right face, right arm and leg. May 7, 1902, operated upon at Colony.

Result: No improvement in epilepsy.

Case 29.—J. A. S., 29. G. M. for 25 years, following typhoid. Paralysis of left arm. Trephined at Massachusetts General Hospital 7 years before admission.

Result: No improvement.

Case 30.—W. B., 16. Onset at 2 years. Cause unknown. P. and G. M. Attacks began in left hand, extending to left arm, face and head, then to left leg. Trephined June 7, 1902, at Colony. No marked pathological condition found at operation.

Result: No improvement.

Case 31.—J. O. P., admitted Sept. 12, 1902; aged 16. At age of 7 received a fracture of skull, and was afterwards trephined. Epilepsy developed 2 years after injury. G. M. No heredity; no paralysis; two or three attacks per month.

Result: No improvement.

Case 32.—C. E. E., aged 26. Admitted Feb. 24, 1903. Epilepsy for 14 years, following traumatism to head. G. M. Paralysis of right arm and leg and left side of face. Trephined in Syracuse in 1899. Seizures more frequent after operation.

Result: No improvement.



Case 33.—I. G., aged 21. Admitted April 29, 1903. Epilepsy of five years' duration. Cause, blow on head by pitchfork. G. M. No paralysis. Trephined over right motor area previous to admission. No definite history of the operation.

Result: No improvement; patient an imbecile.

Twenty out of the 33 cases cited above were due to trauma of the head. The average duration of the epilepsy before the operation was approximately  $5\frac{1}{2}$  years, being 16 years in one case and 3 days in another.

The results, noted in no case less than eleven months after the operation and in most of them several years after, were as follows:

In 21, no improvement in the disease, either temporary or permanent.

In 8, the attacks were lessened in frequency and severity, the operation being a part of the treatment only.

In 3, the disease was much worse after the operation.

In 1, apparent recovery; the patient in this case being a woman, whose first convulsion had appeared after a severe head injury in her eighth year, caused by falling down stairs. She was trephined three days after the injury, while the convulsions continued five years longer, disappearing when she was 13 to recur at 30. Some years later when she was admitted to the Craig Colony, her uterus, being a retention cyst, was removed with all appendages, the result now being no attacks since the operation, a period of five years. In this case, the operation on the brain did not relieve the convulsions, the relief being due to the removal of a cause that periodically produced a form of auto-intoxication. The retained menstrual discharge was a systemic poison.

Twenty-eight of the 33 cases were males; 12 of these had good family histories, 10 had not, while in 6 the family history could not be ascertained.

Of the 5 women, 2 had good family histories, 2 had not, while 1 was unknown.

It is worthy of note that none died as the result of the operation. Similar treatment of idiocy is attended with a comparatively high rate of mortality—fully 20 per cent, as we shall see later.

## CASES OPERATED ON AT THE CRAIG COLONY.

*Seizure Records.*

## Case 1.—Operation, April, 1900.

|                 | 1900 | 1901 |
|-----------------|------|------|
| January .....   | 559  | 1    |
| February .....  | 136  | 3    |
| March .....     | 131  | 3    |
| April .....     | 205  | 1    |
| May .....       | 14   | 2    |
| June .....      | 0    | 0    |
| July .....      | 3    | 2    |
| August .....    | 0    | 4    |
| September ..... | 0    | 7    |
| October .....   | 0    | 7    |
| November .....  | 0    | 1    |
| December .....  | 3    | 0    |
| Total .....     | 1051 | 31   |

## Case 2.—Operation, April, 1900.

|                 | 1900 | 1901 |
|-----------------|------|------|
| January .....   | 3    | 4    |
| February .....  | 1    | 2    |
| March .....     | 7    | 1    |
| April .....     | 13   | 3    |
| May .....       | 1    | 3    |
| June .....      | 11   | 2    |
| July .....      | 1    | 3    |
| August .....    | 1    | 1    |
| September ..... | 6    | 6    |
| October .....   | 1    | 8    |
| November .....  | 5    | 3    |
| December .....  | 4    | 4    |
| Total .....     | 54   | 40   |

Case 3.<sup>2</sup>—Operation, November 25, 1900.

|                 | 1900 | 1901 |
|-----------------|------|------|
| January .....   | 12   | 4    |
| February .....  | 14   | 5    |
| March .....     | 31   | 6    |
| April .....     | 13   | 2    |
| May .....       | 19   | 3    |
| June .....      | 16   | 6    |
| July .....      | 0    | 4    |
| August .....    | 0    | 11   |
| September ..... | 5    | 14   |
| October .....   | 13   | 10   |
| November .....  | 2    | 12   |
| December .....  | 0    | 9    |
| Total .....     | 125  | 86   |

<sup>2</sup>Cases 1, 2, 3 reprinted from "Operative Interference in Epilepsy,"  
by R. E. Doran, Albany Medical Annals, December, 1902.

## Case 4.—Operation, May 7, 1902

|                 | 1902 | 1903 |
|-----------------|------|------|
| January .....   |      | 5    |
| February .....  |      | 11   |
| March .....     |      | 3    |
| April .....     | 2    | 3    |
| May .....       | 4    |      |
| June .....      | 2    |      |
| July .....      | 5    |      |
| August .....    | 1    |      |
| September ..... | 2    |      |
| October .....   | 2    |      |
| November .....  | 4    |      |
| December .....  | 0    |      |

We have no accurate information regarding the seizures in Case 4 before admission, and are unable to compare the number of attacks before operation with those occurring afterward.

## Case 5.—Operation, June 7, 1902.

|                 | 1902 | 1903 |
|-----------------|------|------|
| January .....   | 10   | 25   |
| February .....  | 13   | 13   |
| March .....     | 208  | 75   |
| April .....     | 5    | 2    |
| May .....       | 6    |      |
| June .....      | 5    |      |
| July .....      | 13   |      |
| August .....    | 7    |      |
| September ..... | 2    |      |
| October .....   | 7    |      |
| November .....  | 10   |      |
| December .....  | 18   |      |

(The large number of seizures in the last case in March, 1902, was due to status epilepticus.)

Concisely summed up, the results in the five cases operated on at the Colony were as follows:

Case 1.—During the 4 months preceding the operation there were 1031 attacks. During the 4 months following there were 17 only, while during the 20 months following the operation there were 51 attacks.

Case 2.—During the 4 months preceding the operation there were 24 attacks. During the 4 months following, 14; this ratio of disease keeping about the same thereafter.

Case 3.—During 11 months preceding operation there were 125 attacks. During the 11 months following, 66.

Case 4.—Number of attacks before operation unknown. During the 12 months following there were 45.

Case 5.—During 5 months preceding the operation there were 242; during the 5 months following, 54; during the 10 months following there were 193.

It will thus be seen that absolute cure did not result in any case, while improvement followed in one out of four—25 per cent. It should be stated that the five cases detailed were all reoperations the first operation having been performed before the patient entered the Colony. It should also be stated that all of the apparent improvements could not be laid to the results of surgery, for all of the cases were kept rigorously under a definite general treatment, especially under the suppressive effects of the bromides.

The marked improvement in Case 1 was attributed as much to the after treatment as to the operation itself. The importance of doing this is clearly pointed out by Roswell Park in the following statement:<sup>3</sup>

“Operation, when indicated and undertaken, should be regarded as a first measure to be followed, and often preceded, by others looking to a correction of all faults of diet, elimination, etc. Long continued attention to these matters is the price of success.”

This has long been our doctrine, and how true it is can only be appreciated by those who have watched through many years a large number of cases subjected to the knife, the chisel and the saw. Surgeons, as well as neurologists, are apt to advise operation in non-traumatic cases presenting distinct localizing phenomena. In many cases of this kind operation will prove useless from the fact that while *diffuse cortical conditions* (three words I would like to emphasize), productive of epilepsy, may have a central point of greatest initial discharge, the area is too diffuse by far for the knife to remove.

Roswell Park<sup>4</sup> credits Matthiolus with collecting 258 cases of Jacksonian epilepsy subjects of craniotomy, the results being, “some 20 per cent were reported as cured, though only ten of the entire number had been followed for over three years, and only eighteen of them for over a year. Of the others, 15 per

<sup>3</sup>The Surgical Treatment of Epilepsy, American Medicine, Vol. IV, No. 21, 1902.

<sup>4</sup>Op. Cit.



cent were reported improved, while in 65 per cent there was no improvement; 13 per cent died.

Braun collected 30 cases due to trauma, in which Horsley's plan of excision of the affected cortical area was carried out, 13 of the patients being reported as recovered, 9 improved, and 8 unimproved. Of the 13 reported as recovered, only 3 were followed for 3 years, a fact that must vitiate any claim so striking as this one appears to be.

Kocher regards the methods of electrically locating the area to be excised, in the manner advised by Horsley, not sufficiently accurate to always reach the seat of the disease.

Broca and Manbrac credit Ferrier with reporting a total of 21 cases of partial epilepsy operated on, with 12 recoveries, 6 ameliorations, and 3 negative results, adding: "It must be remembered that such observations are often published before 6 months have elapsed." They hold that recoveries are not rare, and that the relief of headache and attenuation of the severity of the attack, which mean a great deal, are at times attained.

In 1893 Starr reported 13 cases operated on, with 3 cures; but three years later admitted that the cases reported as cured were reported too early.

Gowers believes that trephining in idiopathic epilepsy is never justifiable.

It is unfortunate, on the whole, that so little help can be gained from statistics; not that they are essentially unreliable, but because the view-point of those who make them is often so widely different.

There is also often failure to specify the type of epilepsy in which the operation is done, the comparison of statistics being consequently impaired. Another thing that creates confusion is the lack of any rule or uniformity in the length of time that should elapse before results are announced. Bergmann rather caustically remarks that this is sometimes done "before the wound heals."

It is difficult to fix a time limit in this respect. Such limit, in our opinion, should be regulated in a measure by the type of epilepsy operated on—the cause likewise being considered. As a general rule, it should not be less than two or three years in any case, while in all cases possible observations should be kept up after that. If we accept two or even three, years as the period

that should elapse after the operation before results are reported the ratio of recoveries from epilepsy under brain surgery will be disappointingly small.

#### RESULTS OF BRAIN SURGERY IN IDIOCY AND IMBECILITY.

The picture of success following brain surgery in epilepsy just presented was not bright.

In idiocy and imbecility, under the light of increasing time, its hue is more sombre still; so disappointing is it in color, in fact, that we feel a strong inclination to turn from it, saying, "There is nothing in it that brings any gratification; we do not want it, nor are we disposed to help in its creation."

Craniotomy, linear and "à lambeaux," was introduced by Lannelongue, who published 25 cases in 1891 in which he claimed results, not only so far as recovery from the operation was concerned, but also as to mental improvement in a remarkably short time, so striking and so novel, that, to use Jacobi's words, "Physicians began to hope, surgeons to glory, and the idiotic children"—he significantly adds—"let us see."

Nothing finer or more exhaustive on the subject, from the standpoint of the incredulous, if not of the positive opponent, has appeared in medical literature to our knowledge since Jacobi's masterly address, "Non Nocere," delivered before the Eleventh International Medical Congress in Rome in April, 1894.

The essence of that address, so true then, is none the less true now; the pathology of mental deficiency has not changed, nor have we in all these years elevated the cause of craniotomy in the treatment of idiocy in any degree.

The "furor operandi" so generally acclaimed ten years ago has largely passed away, but it may return at any time, when the great principles that underlie "Non Nocere" in this particular field of medical work will await a wide application.

"What," asks Jacobi, "are the underlying conditions of idiocy?" In the main, as shown by the results of the autopsies, they are as follows: "Chronic encephalitis, diffuse or circumscribed; diffuse (syphilitic) disease of the blood vessels; arrest of vascular development in the cortex; inequality in the hemispheres; inequality in the peripheral cortical layer on the two sides; defect of the third frontal convolution and the island of Reil; meningo-encephalitis, with thickening and adherence of

the pia and brain, such as may occur after forceps or trauma, kephalo-hæmatoma internum, spontaneous hemorrhages; embolism from heart disease; thrombosis from cholera infantum, followed by destruction of cerebral cells and atrophy of the cortex."

Starr found the last condition in 21 cases out of 343. In the same cases in 32 instances he also found maldevelopment and apparent atrophic conditions of the brain structure of the hemispheres, chiefly cortical, the cells resembling those of a newborn child, but with no apparent gross defects in the brain; atrophic and hypertrophic sclerosis, congenital or post-natal, in 97; atrophy by softening produced by embolism or thrombosis, and limited to certain arterial districts, in 23; arrest of development, such as porencephaly, in 132; cysts, which produced atrophy by pressure or were associated with the atrophy due to the original lesion, in 14; hemorrhages which were discernible by the remains of a clot, or by the blood-staining of a cyst, of the pia, or of sclerotic tissue, in 18.

In addition to all these causes of idiocy, there remain to be mentioned hydrocephalus, microcephalus and premature ossification of the fontanelles and sutures.

These, in the main, are the pathological conditions in the brain that surgical intervention seeks to remove or modify for the relief of idiocy and imbecility, and while it would be of the greatest interest to look deeper into the relative frequency, degree and kinds of the different causes and pathological states, we must, perforce, for lack of time pass on to what surgery—never more brilliant or wondrous in the world's history than it is today—has been able or unable to accomplish in the way of relief.

While the literature is replete with histories of individual cases, that teach valuable lessons, I am able to present 194 such cases under two heads in condensed form; the first group including the more immediate results in 111 cases; the second, results somewhat more permanent in 83 cases.

TABLE I, ONE HUNDRED AND ELEVEN CASES.<sup>5</sup>

Case 1.—Microcephalus, imbecility from early synostosis in a child. Left craniectomy. Death 24 hours after operation. (Lane; *Journal of Am. Ass.*, Jan., 1892.)

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<sup>5</sup>Both tables are made up from the results noted by Lowenstein, in references given.

Case 2.—Girl, 4 years, microcephalus, craniectomy in two sittings. Results excellent. Marked improvement of general condition. (Lannelongue; *Gaz. hebdom.*, 1890.)

Cases 3-26.—24 cases. 13 boys, 11 girls. Microcephalics and idiots, young subjects, showing (with or without epileptiform crises), motor or psychic troubles. Operation for the most part "Kraniektomie à lambeaux." Dura opened in one case. Three died after operation. In a very large number of cases mental improvement; also in regard to the gait. (Lannelongue; *Gaz. des hôp.* 1891, *Congrès franç. de chir.*, 1891.)

Cases 27-30.—First case, craniectomy. Improvement, but a second operation was without results. Second case, 19-month girl. Idiocy. Premature suture synostosis. Failure of fontanelles. Craniectomy on both sides. After three months, improvement, distinct, if not satisfactory. Third case, 16-month boy. Microcephalic idiot. Synostoses of suture and fontanelles, convulsions. Craniectomy. Death immediately after operation. Fourth case, 4½-year girl. Microcephalic idiot. Failure of fontanelles, convulsions, craniectomy. Death immediately after operation. (W. Keen; *Amer. Jour. Med. Sciences*, 1891.)

Case 31.—Girl, 3½ years. Microcephalic idiot, epilepsy. Premature synostosis of sutures and fontanelles. Left parietal bone lapped over right. Left arm paralyzed. Left craniectomy. Brilliant results 3½ months after operation. Epilepsy disappeared. Arm useful. (Ranschoff; *Medical News*, 1891.)

Cases 32-34.—Three cases. Only in one exact history; 6-year boy. Microcephalus. Idiot. Synostosis. Convulsions. No trace of intelligence. Craniectomy. Excellent results. In the other two cases good results. (Wyeth; *Med. Record*, 1891, and *Gaz. hebdom.*, 1891.)

Case 35.—2½-year boy. Microcephalic and idiotic. Could not walk, stand or speak. Epilepsy. Left craniectomy. Eight weeks after operation, improvement. Epilepsy disappeared. (Will. Morrison; *Med. Rec.*, 1891.)

Cases 36-37.—3-year boy. Microcephalic and idiotic. Craniectomy. Improvement in ten days

7-year boy; microcephalic and idiotic. Craniectomy with incision over the speech center. Death after operation. (V. Horsley; *Brit. M. J.*, 1891.)

Case 38.—8-month boy. Microcephalic; idiotic; blind both sides. Left craniectomy. Sight improved. Great improvement. (Miller R. Shalders; *Ibid.*, 1892.)

Cases 39-45.—(1) 3½-year boy. Microcephalic; idiotic; epilepsy. Right craniectomy. Improvement.

(2) 4-year boy. Microcephalic and idiotic; epilepsy. Left craniectomy. Result, negative.

(3) 18-year boy. Microcephalic; idiotic; epilepsy. Craniectomy. Death.



(4) 15-year boy. Same symptoms as above. Craniectomy. Death in 26 hours.

(5) 9-year boy. Microcephalic; idiotic; epilepsy. Craniectomy. Improvement

(6) Symptoms in 12-year girl as in 5. Right craniectomy. Result, negative.

(7) 14-month child. Microcephalic; idiotic. Left craniectomy. Death, soon.

Case 46.—3-year child. Did not walk, sit or speak. Salivation. Right craniectomy. Improvement. (M. Gould; *Med. News*, 1891.)

Case 47.—4½-year boy. Microcephalic and idiotic. Epilepsy. Craniectomy on right side. Improvement. The author is not absolutely satisfied with this improvement. (Clayton Parkhill; *Ibid.*, 1892.)

Case 48.—9 years; microcephalic and idiotic. Like 3-year child. Right craniectomy. Improvement. After two years grew much worse Died in 1893. (Preugrueber; *Gaz. hebdom.*, 1892.)

Cases 49-50.—4-year girl. Microcephalic; idiotic; craniectomy both sides. Improvement.

11½-year boy. Microcephalic and idiotic. Left craniectomy. Improvement. (Chenieux; *Ibid.*)

Case 51.—3-year boy. Microcephalic. Slight improvement in seven months. (Largeau; *Ibid.* und *Congrès. franç. de Chirurg.*, 1892.)

Case 52.—Eight months; microcephalic; craniectomy. After operation, deterioration, then slight improvement. (Gersuny; *Gaz. hebdom.*, 1893.)

Case 53.—Microcephalic and idiotic. Temporary craniectomy. Improvement. (Jonnesco; *Ibid.*, 1898.)

Case 54.—16 months; microcephalic and idiotic. Craniectomy both sides. Improvement, but death after five days. (Griffiths; *Ibid.*)

Case 55.—19 months; microcephalic and idiotic. Craniectomy. Result, negative. (Boyd; *Ibid.*)

Case 56.—8 years; microcephalic; epilepsy. Left craniectomy. Improvement. (Auger; *Congrès franc. de Chirurg.*, 1891.)

Cases 57-58.—4 years; microcephalic and idiotic. Craniectomy. Result, negative.

2-year boy; microcephalic and idiotic; epilepsy. Craniectomy. Death 21 hours after operation. (Mannoury; *Ibid.*)

Case 59.—8-month girl. Microcephalic and idiotic. Craniectomy. Improvement at first. Five weeks after operation again the old condition. Death shortly after. (Heurteaux; *Ibid.*)

Case 60.—3¾-year girl. Microcephalic and idiotic. Craniectomy on both sides. More intelligent expression. (MacClintock; *Centralbl. f. Chir.*, 1892.)

Case 61.—11-month boy. Microcephalic. Craniectomy, left. Improvement. Operation should be repeated. (E. Kurz; *Ibid.*, 1893.)

Case 62.—Microcephalic child. Craniectomy. No result reported. (Postempsky; *Ibid.*)

Cases 63-64.—1½-year; microcephalic boy. Craniectomy, both sides. No result after one year.

2½-year; microcephalic girl. Craniectomy, both sides. Death 8½ weeks after operation, unimproved. (Tillmanns; *Ibid.*, 1894.)

Case 65.—14-year boy; idiot. Right craniectomy. Seven trephine buttons removed. Improvement. (A. Szpanbock; *Ibid.*, 1895.)

Cases 66-77.—12 cases; microcephalic and idiotic. Ages 2½ to 8½ years. Linear craniectomy. 3 improvements; 5 negative results; 1 doubtful; 3 deaths. (C. L. Dana; *Ibid.*, 1897.)

Case 78.—3½-year boy; microcephalic and congenital occipital meningoceles. Idiocy. Craniectomy left and right, and extirpation of the meningoceles. 2½ years after operation physical and mental improvement. (Parona; *Jahresbericht f. Chir.*, 1895; and *Contributo alla Chirur. Cerebrale e spinale.*)

Cases 79-90.—9 operated cases. The majority craniectomies; Two improvements. (Oed & Cotterall; *Ibid.*)

Cases 91-92.—1, after a year, no improvement; 1 died. (Isuardi; *Ibid.*)

Case 93.—9-month child; microcephalic and idiot. Craniectomy both sides. Result, negative. Death after 2 years. (Bourneville; Lombard & Pillier; *Ibid.*, 1896.)

Case 94.—8-year girl. Idiot. Craniectomy. Improvement. (Recasens; *Ibid.*)

Case 95.—5-year idiot. Craniectomy. Result, doubtful. (Lilanus; *Ibid.*)

Cases 96-102.—7 cases of microcephalus and idiocy. Craniectomy. In all seven cases, result negative. (Blank; *Ibid.*, 1895.)

Case 103.—3¾-year boy. Microcephalus and idiocy. Craniectomy both sides. Improvement. (Joos; *Corresp.-bl. f. Schweizer Aerzte*, 1893.)

Case 104.—14-month girl. Microcephalus. Craniectomy, circular. Improvement. (Dumont; *Ibid.*)

Case 105.—12-year child. Microcephalus. Craniectomy, both sides. A little improvement. (Schede; *Deutsche Med. Wchnschr.*, 1895.)

Cases 106-107.—15-year girl. Idiocy. Microcephalus. Left craniectomy. First improvement, then old condition. Result, negative.

2-year boy. Microcephalus and idiocy. Craniectomy, left and right. Death seven days after operation. (Beck; *Prager Med. Wchnschr.*, 1894.)

Case 108.—2-year boy. Microcephalus and idiocy. Craniectomy, both sides in two sittings. Improvement. Half a year after operation no progress. No improvement after second operation. After eight weeks a slow improvement noted by the mother. (Akermann; *Volkman's Sammlung Klin. Vorträge*, 1890-94, Nr. 90.)

Cases 109-110.—(1) 6-year boy. Microcephalic and idiotic. (2) microcephalic and idiotic. Left craniectomy. Both children neater. (Rabow & Ronx; Therap. Monatshefte, 1891.)

Case 111.—Girl. Microcephalic and idiotic. Epilepsy. Craniectomy both sides. Result, negative. (Starr; 1894.)

#### SUMMARY OF RESULTS IN ONE HUNDRED AND ELEVEN CHILDREN OPERATED ON.

19, or 17%, died in consequence of operation or soon after.

25, or 22.5%, were operated upon with no result.

10, or 9%, were operated upon with slight result, but not satisfactory.

24, or 21.5%, were improved in stated ways.

30, or 27%, improvement without reports as to its character.

3, or 3%, with no reports as to the results given in general.

#### TABLE II, EIGHTY-THREE CASES.

Cases 1-4.—3 boys; 1 girl. Ages 3, 5, 7, 9 years. All were microcephalic and idiots. 2 were epileptics. Linear craniectomy. 2 died after operation. Old hemorrhage of brain. One disappeared after the first improvement. One was improved. (Parkhill; Denver, June 19, 1899.)

Cases 5-26.—22 cases, in age from 14 months to 8 years. All were idiots and microcephalic. Linear craniectomy. The results were such that Lamphear since 1896 has not done the operation in general. Some died within a few years after the operation. (Manoury; Chartres, Juin 10, 1899.)

Cases 27-41.—15 cases of craniectomy. 5 died immediately after the operation. 1 died after having become maniacal a short time after the operation. 6 showed absolutely no result. 3 were only quieter after the operation. (Roswell Park; Buffalo, June 22, 1899.)

Cases 42-45.—See other table (27-30). 2 died immediately after the operation. 2 showed practically negative results. Keen from his results became opposed to the operation. (W. Keen; Z. Lt. Hamburg, June 30, 1899.)

Case 46.—See 38 in last table. Died four years after operation. At first improvement; then 2 years after operation return to old condition. (Miller R. Shalders; London, June 15, 1899.)

Case 47.—See case 81 in last letter. The writer says: "The operation of Lannelongue has given no result; no one of my acquaintance practises it in France." Hemicraniectomy. Result nil. (Doyen; Rheims, Juin 19, 1899.)

Cases 48-49.—4-year girl. 2-year boy. Microcephalic and idiotic. Craniectomy. 1 died immediately after operation. 1 showed improve-

ment in the first 2 or 3 months after operation. 5 months later the old condition returned permanently. (Mannoury; Chartres, Juin 10, 1899.)

Cases 50-52.—11-year child. Microcephalic. 13-year boy. Microcephalic, idiot and epileptic. 4½-year boy. Microcephalic; idiot; spasms. Craniectomy, both sides. At first, results. Then "The patients remain idiotic and epileptic and have only temporary ameliorations for 1 or 1½ months. (Jaboulay; Lyon, Juin 14, 1899.)

Case 53.—Case 61 of first table. At first improvement. Then patient grew worse and died in 1897. (E. Kurz; Florenz, Juni 16, 1899.)

Cases 54-75.—22 cases of microcephalus, idiocy and epilepsy in children not over 5 years. (66-77 in first table.) Craniectomy of various kinds. 5 died. 14 were operated upon without results. 3 were improved. (C. L. Dana; N. Y., Sept. 18, 1899.)

Case 76.—Result, nil. Child died 1½ years after operation. The whole left hemisphere showed cystic degeneration. (Gersuny; Wien; Juni 25, 1899.)

Cases 77-78.—1 (Dumont, 104, Table 1). Epilepsy remained till death, 1896. (Operation, 1893.) 2 (Joos & Walder, 103, Table 1). After 2 years the results disappeared and the patient was in a sad state. (Dosseker; Corresp.-bl. f. Schweizer Aerzte, 1899.)

Case 79.—Idiocy. Craniectomy, both sides. No change after operation. After five years the old animal condition. (Czerny.)

Cases 80-82.—3 cases. 2 girls; 1 boy. Ages 6, 7, 11 years. Idiocy; 1 with microcephalus. Circular craniectomy. 2, much quieter, one died after some years an idiot. (Dumont; Bern., Oct. 21, 1899.)

Case 83.—3½-year girl. Microcephalic and idiot. Epilepsy. Craniectomy. At first improvement, then deterioration. The child became insane and died in this condition in 1900. (Perry; Kolombo, Sept. 20, 1899, together with letter of Jonathan Bird Kandy, July 10, 1899.)

#### SUMMARY OF RESULTS IN EIGHTY-THREE MORE PERMANENT CASES.

20, or 24%, died.

54, or 75%, unimproved.

9, or 10½%, improved.

Seventy-five out of 83 received no benefit. The 9 who were improved showed it mostly in being quieter. This was the result in a case of restless imbecility and epilepsy operated on at the Colony; mental deterioration after the operation being rapid. The sudden lull in purposeless activity that follows the operation in some cases must not be mistaken for gain in mental powers. The opposite is generally the rule.

Note the results in Roswell Park's 15 cases. Five died immediately after the operation; one died after having become



maniacal a short time after it; 6 showed absolutely no improvement; while 3 only were quieter. Also the results obtained by Lamphear in 22 cases, ranging in age from 14 months to 8 years, all microcephalic idiots, the results being such that since 1896 Lamphear has not performed the operation. Doyen says, "The operation of Lannelongue has given no results; no one of my acquaintance practices it in France."

Dana's 22 cases turned out as follows: 5 died; in 14 there were no results; while 3 were improved; none being over five years of age, all having idiocy and epilepsy.

Wilson states that since Faller, of Montreal, trephined an idiot's skull, in 1878, to improve the mental condition, and Lannelongue, of Paris, did linear craniectomy on microcephalic idiots with the same object, craniectomy has been done a number of times with varying success. Some think with Lannelongue that the premature ossification of the skull is the cause of the microcephalus and deficient brain development, and justify the operation on the theory that after it the imperfectly formed brain improves its function and takes a greater amount of nourishment.

"With the hypothesis," says Lowenstein, "of the primary synostosis of the sutures and fontanelles and the secondary hindrance of brain development, stands or falls the right of Lannelongue's operation. The hypothesis is false and therefore the operation is not a suitable one. Death or no result follows."

Keen says that no good can possibly come from operation on an idiot with a skull of average size, in extreme microcephalus, or in a patient over seven years of age, and concludes that in some few cases of moderate microcephalus, craniectomy is justifiable; that slight improvement will follow in a small number of cases, but in the majority there will be no change. He places the mortality at from 15 to 20 per cent.

Dana holds that craniectomy is justifiable in a selected class of cases. He believes that the clinical reports show improvement too often for the facts to be ignored. He thinks the operation is indicated in simple lack of development rather than where extensive lesions exist.

Jacobi gives 41 operations on 33 cases with 14 deaths, and of the 19 recoveries from the operation there was slight improvement in 8 and considerable improvement in 2, and says:

"It appears that in the face of so many deaths and so few results, the operation is not promising to mankind.

The operations thus far performed do not effect what they were intended for; they do not even enlarge the cavity. . . . . If any cases be at all amenable to treatment by such operations, they must be those of incomplete premature ossification of the sutures and fontanelles."

Goethe once said that "The most interesting book that could be written would be a treatise on the errors of mankind," and Jacobi adds, "Let us see to it that our mistakes do not swell that book."

Carl Beck concludes that craniectomy is justifiable and apt to be successful in microcephalus with idiocy. Acquired and late forms give a better prognosis than the congenital forms, while the dangers of the operation, he says, are not very great.

Norbury is of the opinion that the basis of much cerebral surgery in mentally defective states has been grossly theoretical. "Especially," he goes on to say, "does this apply to operations for the relief of microcephalus."

Operation from a pathological standpoint is utterly hopeless. Synostosis is not necessarily indicative of arrested mental development, and it is not a factor in producing microcephalus.

Broca has modified Virchow's views by saying it is a result and not a cause of microcephalus. Lannelongue now accepts the same view, but believes that as the brain is capable of development until past the 8th year, the operation is justifiable as a stimulant to brain growth.

Idiocy is a "vice of the entire organism," and the improvement of the mental condition depends upon the improvement of the entire physical system. This cannot be done by the assistance of surgical means, for brain growth is not dependent upon stimulus from such a source, but from true physiological education—the training of the bodily powers—without which no mental improvement can be expected.

The marked improvement noted in the few cases which have survived the operation of linear craniectomy is not to be wondered at, as all interested in the case have sought by every

means to improve the child, and it must respond to a certain extent.

On the whole, Norbury is vastly in favor of educational in contradistinction to surgical measures for the improvement of the mental conditions of the feeble-minded.

Bourneville, in reviewing in detail the histories of 13 original cases, concludes: "It is, then, the medico-pedagogical treatment to which we must turn and upon which we must depend. This is for the amelioration, and even the cure, of a notable portion of children afflicted with the divers forms of idiocy.

Pellet states that the pathological anatomy of the brains of idiots confirms the opinion expressed by Bourneville. It is not difficult to formulate conclusions on the results to be expected from surgery of the brain done for the possible relief of epilepsy and congenital mental defect.

If the epilepsy is general and of some years duration, we need scarcely expect a cure, though in selected cases operations may ameliorate the symptoms to a marked extent—temporary amelioration being oftener obtained than that which is permanent.

If the epilepsy is unessential, reflex, rudimentary in type, or of short duration, and the operation removes the cause early enough, we may expect the convulsions to cease in many cases, provided the patient is free from the vices of heredity that are always beyond the reach of the knife.

We fail to find a single case of congenital mental defect in which a normal mental status was established through surgical intervention. We find many reports of cases benefited—the degree not being given—so that it is extremely difficult to judge of specific results in any case.

The fact that such operations are so few, as compared to what they were ten years ago, is the strongest argument against their utility in the great majority of cases. Surgical interference may still be used in isolated cases of idiocy, but it seems clear that it is slowly finding its position in rational treatment along a plane far lower than seemed possible at the time of its inauguration.

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#### DISCUSSION ON TRAUMATIC INSANITY AND BRAIN SURGERY.

DR. HENRY M. HURD: I wish to add a case to those detailed by Doctor Burr, not because this was a case of traumatic insanity, but because the condition of the patient was immediately improved by the operation. During the past week a patient was admitted to the hospital, with which I am connected, in consequence of an election dispute. He met another patriot who disagreed with him as to the conduct of an election, and in the course of the discussion which resulted he received a blow in the left parietal region about four or five lines back of the fissure of Rolando. The result was a loss of muscular sense on the right side and a complete loss of ability to speak words. There was also a peculiar loss of musical sense which was rather interesting. A musical member of the staff, and a devotee of Wagner, executed in his presence a few bars from a Wagnerian opera, but the patient could not in any manner be induced to recognize that it was music. He made another effort, however, and this time whistled: "A Hot Time in the Old Town To-night," whereupon the patient's countenance changed and he showed a lively interest and appreciation of the fact that it was music, although unable to speak. The patient was becoming dull, stupid and apathetic. He was promptly trephined, although I confess I was not much in favor of the operation. As soon as the button of bone was removed a clot of blood about the size of a pigeon's egg gushed from the opening. The wound was carefully dressed and the patient put to bed. The next morning there was a return of speech and a partial return of the musical sense. Since that time there has been a very marked and gratifying improvement in the patient. This case indicates that if we could get a patient suffering from traumatic epilepsy early enough, and if the operation could be performed soon after the mischief is done we may hope for some good. I have always discouraged operations for chronic epilepsy, but in cases of the character described we should encourage early operative interference.

DR. TOMLINSON: The popularity of head injuries as a cause of insanity, like the frequency with which they appear in statistics as the cause of



mental disturbance, is due to the desire of the relatives of the individual to avoid the recognition or admission of the presence of instability or defect in the family; thus finding an explanation for the insanity which will obviate the stigma they imagine such an admission would entail.

I do not remember that we ever received a patient, especially a man, whose relatives did not find a lump on his head to account for the mental derangement—even if it was only the occipital protuberance. (Laughter).

There are certain facts, not referred to by the writers of the papers, which seem to me to be very important in discussing the causative relation between the traumatic and the mental disturbance. They are: the time of the appearance of the mental disturbance; its extent and character with relation to the injury; the personal history of the patient, as to the presence of instability or defect limiting the cerebral potentiality of the individual, so that the traumatism becomes simply the determining factor in the mental alienation. Again, it is well known that there may be terrible head injuries, with considerable loss of cortical substance, without any mental disturbance whatever, either temporary, consecutive or remote, while after only a slight blow there may be delirium, or even mental perversion. There does not seem to me, then, to be a scientific foundation for the use of the term "traumatic insanity." More especially as its symptomatology does not differ in any way from that of mental disturbance due to any other cause.

I am willing to concede that an individual with defective cerebral development, or of limited cerebral potentiality, may, as the result of a traumatism, become insane. But the trauma did not initiate the insanity. Anyone who has done much post mortem work among the insane, and has studied the changes in the brain with care, knows that the tendency with degenerative processes is to begin first where development ends; that is, about the convolutions which cover the insula, where all the higher and more complicated functions of the cerebrum are centered. While I have made post mortem examinations very often in cases where the insanity was said to be due to brain injury, I have never been able to discover any relation between the extent of the injury and the nature or character of the mental disturbance. But I have invariably found that, except in those cases where there was actual destruction of brain tissue at the time of the injury, the degenerative process began about the insula. I believe we are too prone to do as the laity do, and credit the insanity to the head injury, because we have not been able to find any other cause for it; we are satisfied to allow an accident or an incident to account for a process that was only waiting to be started up. The same thing holds true, as referred to by Dr. Spratling, with local brain degeneration in epileptics. The degenerative process may be extensive, even if the focal manifestations are slight, so that even if the apparent cause of the focal manifestations is removed, the degenerative process goes on just the same. This has been my experience with regard to so-called traumatic insanity.

I want to call attention to another point not sufficiently dwelt upon: that is the distinction between mental perversion and mental reduction. Any cause sufficiently powerful to interfere with the functioning of the brain

may produce mental reduction temporarily, and this is usually accompanied by confusion, or, if extreme, results in delirium. And these different phases of inco-ordination may follow even emotional disturbance. Why should they not follow, then, the shock and concussion resulting from a traumatism. In the average individual these manifestations disappear with the physical cause of them: but in the unstable or defective they are the beginning of a degenerative process with mental perversion and progressive dementia.

Because there is nothing specific in the effect of the trauma, we ought to be careful of our definitions, not necessarily on our own account, because we know better, but because the general practitioner is prone to accept our definitions, because he likes to have a definite anchor for his diagnosis, and prefers, if possible, to get it without mental effort. (Laughter).

Doctor Spratling's paper covered the question of operation in cases of brain injury following traumatism very thoroughly, but I agree with Doctor Hurd that there is a class of cases, especially where there is delirium following traumatism of the brain, where an operation is not only justifiable, when done early, for the relief of the mental disturbance, but the opening of the skull at the seat of the injury, with the effect of the regime of convalescence, may be the means of stopping an inflammatory process and setting up a nutritional change which would prevent the onset of the process of degeneration in an unstable or defective individual. (Applause).

DR. HARRINGTON: There is one aspect of this subject which seems to me of sufficient importance to call it to notice. It has only been touched upon by the readers of these papers. I refer to the medico-legal relations of traumatic insanity, and the particular point I have in mind is, that I think we should be careful as to the phraseology which we use, lest we lead to the impression that typical forms of mental disease, such as paranoia and dementia præcox, for instance, may be caused by trauma.

When I have decided that I am dealing with a case of mental disease which has all the characteristics of a typical constitutional and degenerative psychosis, and which has manifested itself subsequently to trauma, I hold the opinion that trauma has not been responsible for the psychosis.

It is true, doubtless, that traumatism may produce a train of symptoms bearing a close resemblance to the typical psychosis, but as Doctor Meyer has intimated, there is between such cases and the typical psychoses a difference, and I hold that this difference can be recognized by the experienced alienist without a great deal of difficulty.

We have heard this morning cases designated as "systematized insanity," "delusional insanity," and "primary dementia" following trauma. These terms are often used synonymously with paranoia and dementia præcox, and it is indefinite in my mind just what the writer means.

I offer it as a suggestion and a criticism that greater care be exercised in the use of such terms, and, unless the author believes that typical psychoses are produced by trauma, I think it would be wise to be sufficiently explicit in the use of terms to make it plain that he refers to symptoms resembling types of psychoses, rather than to give these traumatic cases names which stand in our nomenclature for definite conditions and which we have accepted in theory as being constitutional.

The practical point in connection with what I say is that loose phraseology on the part of writers is apt to be brought up to us when we, perchance, are called to the witness stand as alienists in medico-legal cases, and we are liable to be met by references to the writings of men regarded as authorities who have conveyed a wrong impression through employing language not sufficiently definite.

DR. DEWEY: One who is familiar with German, when listening to the essays and discussions on this subject, might wonder whether or not the word was used in the German sense. "Traum" means in German "a dream." Certainly there seems to be some "*traumerei*" on the part of those who have reported these long series of cases and in the minds of those who looked back to the history of the patients and discovered through them traumatic causes for long subsequent developments.

But there is one class of cases in which trauma cannot be regarded as anything unreal—those that have been detailed by Doctor Hurd in which a clot is found producing serious pressure or a displacement of the bony parts occurring in certain accidents in which there is an area of bony depression. These would seem to be exceptions to the remarks made by Doctor Tomlinson on this subject.

DR. EVANS: I desire to make just a few remarks in connection with the discussion of this subject of traumatic insanity, not because I have anything of an instructive character to communicate to the Association, but in part because it will give me an opportunity to express the appreciation I feel of the papers that have been read at this meeting. I would also like to give just one little experience along the line of the remarks made by Doctor Harrington.

I was recently called to court in the capacity of an expert in a case of so-called "traumatic insanity." It was the case of a boy about nineteen years of age, I believe, and the diagnosis made by some of the physicians, who either testified or were prepared to testify, was that he was suffering from traumatic insanity. Upon a careful examination of the young man he showed every evidence—no, I will not say every evidence, for perhaps that is too sweeping—but he showed many of the evidences or stigmata of degeneration, and evidence of a lack of mental development. He was a Polish Jew who, although he had been in school, was unable to secure any education, and could not either read or write English, although he had been for two years to an English school. He was stupid, dull and showed every evidence of a thorough lack of vigorous mentation. He did not seem to understand any question that was asked him, except such as could be answered by "yes" or "no," and he took little interest in his surroundings. An examination of the scalp showed two very small scalp wounds—one about as large as a silver ten-cent piece, but no depression whatever, and no evidence that the table of the skull was damaged. He had been hurt by a trolley car, and suit was brought for fifteen thousand dollars damages. The accident had occurred about two years before the trial. I believed then and I believe now that the wound was practically nothing more than a minor incident in the situation, and that his mental trouble was in no wise dependent upon the injury he had received. But there was no way of tracing



the patient's history because he had been born in Russia or Poland, and so all that could be secured was a brief history extending over two or three years before he was injured. An operation would have thrown no light upon the subject in my judgment. There was not the slightest depression of the skull, the wound was very slight—such as would come from a little boil after it had been opened or the pus had escaped. But so strong was the contention that in view of the serious mental deficiency we were forced to suggest a compromise, which was effected.

But I do think that in all cases of traumatic insanity where there is actual interference with function by pressure or blood clot, no one will question the advisability of prompt operative procedure. But when it becomes a matter of degeneration, when the tissues have become affected in a general way and the degeneration is progressing, then simple surgical interference at the focal point brings very few if any satisfactory results. I wish to say that I appreciate very heartily the excellent papers of Doctor Spratling and the other gentlemen.

THE PRESIDENT: For the relief of Doctor Harrington's anxiety I wish to say a word, and I will put it in the form of an anecdote of recent date which is brought to Washington by Doctor Dewey himself. Doctor Harrington, you will remember, said that as witnesses in court we might be embarrassed by being confronted with the testimony of a certain expert. Fortunately the expert is usually asked if he considers so-and-so a competent authority. In a recent case in Chicago Doctor Dewey was pitted against a man of almost equal eminence. It was a case of Greek meeting Greek. The other Greek was asked whether he considered Doctor Dewey a competent authority, and the answer came—"I have great respect for the opinions of Doctor Dewey except in those respects in which they differ from my own."

DR. KENISTON: My experience has been with the insane epileptic, and the treatment of the insane epileptic is largely suggestive and moral and very little, if at all, medical. I should like to refer briefly to two or three points. There is of course great weakness of mind, but this apparent weakness of mind is due to the patient's inability to fix the attention, and often the first difficulty to overcome in the treatment of insanity is to get the patient's attention. Another difficulty is the inability of the epileptic to pursue a coherent train of thought. Again, while he may reach a goal in his mental processes, it will be in a very circuitous manner: he will have numerous digressions—a little side issue will throw him off the track. The third element that is of special interest to me is the emotional weakness—especially a lack of moral sense. Theoretically an epileptic will often be affected with religiosity; he will often make long prayers and quote from the scriptures, but the practical application of religion is very frequently lacking. He will utter the most noble sentiments, but practice the very reverse without the slightest appreciation of the contradiction. However, in one epileptic case I have by suggestion induced him to refrain from assaults for about two years. I told him again and again that he must think he was always calm, never passionate or impulsive.

The next point the doctor spoke of was with regard to disturbance of volition. There is usually hypersuggestibility, which is very characteristic



in the insane epileptics. On the other hand there is another side of the epileptic that is very seldom dwelt upon, and that is that no other class of patients have such a sympathy for their fellow patients in a seizure. They will help each other in such cases. They will take great interest in anyone who is sick. I therefore always ask them to help me in the care of the sick, and by this get a hold upon them that I could not get in any other way.

THE PRESIDENT: I have been very much interested in the papers. They will be of great value to expert witnesses who are called upon to give testimony in court in cases in which the plea of epilepsy is advanced. But I am brought to my feet more particularly by a remark made by Doctor Keniston as to the religiosity of epileptics. It seems to me (and the opinion will probably be shared in by most of us who have to deal with the insane) that religion with epileptics is merely a state of mind and bears no relation whatever to conduct.

## THE PATHOLOGY OF ACUTE DELIRIUM.

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The term *delirium* is generally used to describe a state of confusion with excessive mental activity, which is incoordinated, prompted by centrifugally generated impulses, and without relation with the environment. The significance of this condition is the same, then, except in degree, as insanity, and its most conspicuous manifestation is usually called "acute delirious mania."

The reception of a number of cases of delirium within a short time, in the year 1894, led us to take up the study of this form of mental disturbance; because our experience with this series of cases did not correspond with the generally accepted views as to the clinical course and pathology of delirium. Since that time we have studied all of the cases of delirium coming into the hospital with especial care, and have kept detailed records, both of the clinical manifestations and also of the post-mortem findings.

It will facilitate the study of this subject to recognize at the outset, that the mind, so-called, is not an entity. Also, to quote from what the writer has said elsewhere, "When we take into consideration that insanity is the manifestation of alteration, not destruction of function, we can appreciate that the activities involved are the same in amount and kind, in both normal and abnormal cerebral functioning. In the one case they represent the response to external stimuli, the effect of which is habitual; while in the other they are excited by centrifugally generated stimuli, more or less out of accord with external relations. There is no abstract difference between the conduct of the sane

and the insane! The difference lies in the nature of the experience which gives rise to the conduct, and the loss of control of the activities which are manifested in the conduct."

The clinical picture of delirium, or rather the panorama furnished by its course, when the outbreak is acute, presents first the evidence of confusion. The patient is introspective, depressed, and irritable. This mental state exists because external impressions cease to be accurately cognized and related, and consciousness is dominated by the effort to overcome the resulting confusion. Therefore, external impressions are not fully recognized, nor properly related; and the resulting discharges of nervous energy are imperfectly coordinated and more or less futile. This same mental state is present in partial alcoholic intoxication; as the result of fear; in the presence of severe acute pain; in the overworked student, or the overstrained business man. In these individuals, however, a very slight stimulus, change in environment, or the intervention of sleep, dissipates the confusion. But in the victim of brain instability, who is suffering from physical disease, exhaustion from overwork, or the depression of shock, the confusion deepens, the irritability increases, and the futility of effort becomes more marked; until the individual secludes himself, wanders aimlessly away, or makes efforts at self destruction. At this stage, if a sufficiently strong external impression, such as an abrupt command, or personal contact, is made to break in upon this concentration of effort, there results a petulant answer, or even an outbreak of passion, accompanied by more or less motor activity, in the form of restlessness, a hysterical seizure, or even an assault. As the confusion becomes deeper, the irritability increases; until finally the incoordinate discharges of nervous energy become continuous, and persist until exhaustion supervenes; the ravings become a confused whisper, the movements degenerate into a tremor, and annihilation results; or, again, the confusion and incoordination, reaching a certain degree of intensity, begin to subside; and the path is traveled backward until definiteness and uniformity are again reached. The delirium occurring in connection with typhoid fever, pneumonia, or general sepsis, does not differ from that described above except in degree; and the variations will be found to be dependent, not upon the apparent physical disease, but upon the amount of

brain instability in the individual. In the study of this mental state, due weight has not been given to the influence of the conditions preceding the delirium; the relation of the delirium to similar manifestations in disease conditions other than insanity; or to the comparison of the post-mortem findings in cases of delirium, with those present in cases of acute insanity dying without any manifestation of delirium. It is a great misfortune that the brain is not so carefully studied in those dying from typhoid fever, pneumonia, and general sepsis, as it is in the insane. We are too apt to take for granted that a certain condition found post-mortem in the brain of a person dying insane is the cause of the insanity; losing sight of the fact that we do not yet know that the changes we find do not also exist in the brains of the sane who die under similar physical conditions. Indeed, our observation of the macroscopic changes in the brain and its coverings, among the insane, and our study of the histology of the cortex, would tend to confirm this doubt; so far as any changes are apparent, aside from those present in dementia; and even these can often be found in advanced or premature senility, where no mental disturbance has existed. It is the belief of the writer that the time will come when we will recognize the histological changes, found in the brains of the acutely insane who die, as the result of the physical conditions which preceded and were associated with the insanity, and not as the cause of the mental disturbance. This is especially true with regard to the condition which is the subject of this paper.

The term delirium has by usage come to be applied to a mental state, the principal characteristics of which are, insomnia, raving, and incessant motion, accompanied by profound exhaustion. When the termination is in death, it is preceded by coma, vasomotor paresis, and pulmonary edema. The term raving also implies a continuous process, in which the conversation and conduct of the patient bear no relation to his surroundings, and are not influenced by them. The rapidity of the mental processes, and the excessiveness of the motor activity, give to the sum of the manifestations the character of violence. The result of these continuous violent manifestations is exhaustion; because the patient does not sleep nor take sufficient food. However, a careful study of the details of the history of these



cases, antecedent to the delirium, will discover some degree of brain instability; the presence of intoxication or infection; the persistence of insomnia, and usually obstinate constipation. So the antecedents and concomitants of delirium are the same. Whatever peculiarities there may be in the delirium associated with insanity, are to be accounted for by the greater degree of brain instability in the individual. For instance, we have not found that alcoholic delirium is due directly to the effect of alcohol; but that, on the contrary, it is more apt to make its appearance after the alcohol is withdrawn temporarily. The patient has taken little or no food for some time, and the withdrawal of the narcotic influence of the alcohol makes apparent the effect of exhaustion, which is exaggerated by the want of sleep. Or, in other words, the nervous system is exhausted; so that it is not the alcohol, but the failure of nutrition and the auto-intoxication, that are the causes of the delirium. The victim of alcoholic excess, who is not markedly unstable, who eats and sleeps well, and is not constipated, may have cerebral hemorrhage, or uremic convulsions, but he will not become delirious. Furthermore, the so-called delirium tremens, or *mania a potu*, is not true delirium; because the patient is not unconscious of his surroundings, nor his movements without purpose. On the contrary, they are excited by the distorted and perverted impressions which come to him through his special senses, from his surroundings. It is only when through progressive exhaustion, his delirium takes on the characteristics of what used to be called "coma vigil" that his condition becomes a true delirium. The same separation is to be observed in the association of delirium with insanity. The condition, delirium, is a mental state engrafted upon the insanity, not directly due to the mental disturbance, but rather resulting from the impaired vitality, brought about by insomnia, refusal of food, and excessive motor activity. Then, too, the insanity disappears in the delirium, and if the patient does not die, emerges in its original form as the delirium subsides. Where the delirium is the first apparent manifestation of the mental disturbance, a careful study of the history of the patient has disclosed conditions in his physical and mental status, which have brought about exhaustion of the nervous system alone, with

autointoxication, or some form of general sepsis as a concomitant.

The reason for the intoxication, or its effect, is not so apparent as would be supposed. It is not so uncommon in cases of chronic insanity, during recurrent periods of maniacal excitement, for the patient to go without sleep for long intervals, to take only very little food, and to be in almost constant motion; without the development of delirium, or the determination of physical exhaustion. The history of one woman shows this well. She was 85 years old, had been insane for 25 years, but was in robust health. During a period of three years, while she was under the personal care of the writer, her condition was as follows: For from ten days to two weeks she would be quiet and well behaved, take an abundance of food, and sleep well. Then a maniacal outbreak would occur, and she would become violently excited, noisy and destructive. These outbreaks lasted about six weeks, and during this time she took only a small amount of nourishment, and slept very little. At one time, while under careful observation, it was found that she did not sleep at all for ten days, nor was she quiet during that time; and yet, she never showed any evidence of physical illness or exhaustion, but she did lose in weight. Such cases are not very uncommon, but not often so extreme. On the contrary, acute delirium, as an apparently primary manifestation, or as appearing during the course of an outbreak of mental disturbance, does not have such a history. When delirium appears as a primary manifestation—the so-called acute delirious mania—it is usually preceded by confusion and depression, with a period of irritability and restlessness before the outbreak; and when it is superadded to another form of mental disturbance, there is always insomnia, refusal of food, and excessive motor activity. Also, it is just as liable to occur in cases of acute depression, as in patients who are excited. Again, when delirium is present during the course of typhoid fever, pneumonia, or general sepsis, it does not necessarily occur in those cases where the disease itself is most severe. In pneumonia, as in typhoid fever, the nervous system may be involved from the first. It not infrequently occurs, in our experience, that cases of typhoid fever and pneumonia are committed to the hospital as insane, the physical disease being com-

pletely masked by the mental disturbance. An old man who had been picked up on the road, where he had been wandering aimlessly about, was found to be confused, irritable, and depressed; suspicious, and indisposed to talk. He was brought to the hospital as insane, having passed almost immediately into a state of delirium. He was found to be in the third stage of a double pneumonia and died in two days. It is true that these people are usually suffering from mental disturbance, and in our experience have a history of brain instability; but this does not explain the delirium, although it does account for the mental disturbance. The insane suffer from typhoid fever, pneumonia, and general sepsis, without becoming delirious; and those who are not insane suffer from delirium. Then, too, both the sane and the insane suffer from insomnia, exhaustion, and impaired nutrition, without becoming delirious; although these three conditions are always the concomitants of delirium. However, there is a constant factor in these cases, which is the determining element in the onset of the delirium, and that is that form of intoxication which results from failure in elimination. It is well known that uremia is a very common cause of delirium; but failure of the function of the kidneys is usually not recognized, unless it is the manifestation of a well-defined chronic nephritis; and in our experience, in these acute fulminating forms of mental disturbance, the condition of the vegetative organs is apt to be ignored entirely.

The following distribution of cases illustrates the unity of delirium from the clinical standpoint. All of these people were sent to the hospital as insane. The physical conditions present were either not sought for, or were not recognized; and the mental state so dominated the physical conditions that those associated with the patient saw nothing else. In other words, the picture of delirium was so apparent and conspicuous, that the possibility of the presence of any one of the various physical conditions with which it might have been associated did not suggest itself.

During the past eight years there have been received into the hospital at St. Peter, 87 persons suffering from delirium: 50 men and 37 women. Of this number, 12 men and 11 women were suffering from so-called acute delirious mania; 8 men from alcoholic delirium; 17 men and 10 women from uremic delir-

ium; 2 men from narcotic delirium; 2 men from acute syphilitic infection; 1 man convalescing from smallpox; 4 men and 4 women who were suffering from typhoid fever which had not been recognized; 3 men and 10 women suffering from septic delirium; 1 man and 1 woman suffering from lobar pneumonia which had not been recognized; and 1 woman suffering from puerperal delirium. A certain number of cases, especially those suffering from sepsis, have some elevation of temperature from the beginning. In others there is practically no fever, while in a certain number the temperature becomes very high just before death. But this latter is not a specific condition, as the same phenomenon appears in a number of brain conditions. Outside of those cases, where there was active disease of the vegetative organs, we have not found that the delirium bore any definite relation to the temperature, nor the temperature to the delirium. Indeed, as will be noted in one of the clinical histories to be given, the delirium was at its height when the temperature was subnormal. The following clinical and necropsy records will illustrate the different physical conditions under which delirium develops, in our experience. These cases were chosen as types and they represent all of the forms under which delirium appeared in the 87 cases referred to. For the purpose of this paper only a summary of the clinical history and necropsy record is given:

J. P. Admitted August 23, 1902. Woman; 27 years old; single; born in Sweden; a domestic by occupation. No history of the family was obtained, and nothing concerning her personal history could be learned except that she was said to have had a severe attack of typhoid fever in 1900. On August 14, she is said to have had an attack of acute indigestion. This was followed by a period of depression and confusion. She then had outbreaks of maniacal excitement and was removed to a general hospital. The excitement was accompanied by violent emotional religiosity; she heard voices and saw visions. The disturbance was only occasional, but the confusion persisted. She was brought to St. Peter after an unusually violent outbreak during which she attacked the nurses.

She was poorly nourished, her flesh flabby, skin cool and moist, vitality impaired. The temperature was 103.6° pulse 106 and weak, respirations 23. The heart was slightly enlarged



and displaced to the left. There was diminished resonance over the upper lobes in both lungs anteriorly. The abdomen was distended and tympanitic; the tongue heavily coated posteriorly, its edges reddened and fissured. The teeth and lips were covered with sordes; the appetite was impaired and she was obstinately constipated. There was some retrodisplacement of the uterus with adhesions. The vaginal secretion contained staphylococci.

She was confused, irritable and restless, there was visual and auditory hallucination, her speech was incoherent, and she was in constant motion. The next morning the temperature was 102.5°; pulse 106; respirations 23. After a hot bath, with cold to the head she became quieter, but the furious violence, confusion and incoherence recurred at intervals; she did not sleep and took no nourishment voluntarily. The day after she came to the hospital the Widal reaction was found to be present, and again in 4 and 8 days. As the disease progressed, the temperature became lower and she was not so much disturbed. Mental convalescence kept pace with the physical, and at the end of two months she was sent home recovered. The clinical manifestations of the typhoid fever were not marked at first, but the course of the disease was typical, though mild afterward.

The following case history illustrates an almost exactly similar mental condition, but not associated with apparent physical disease:

T. L. Admitted January 28, 1903. Man; 26 years old; single; born in Norway; a day laborer by occupation. His father and brother have been insane, and he has always been considered peculiar. There is no history of ill health until about a year ago when the patient was operated upon for appendicitis. His present illness began about three days before coming to the hospital. He had been confused and depressed for some little time, but suddenly became disturbed, noisy, the victim of religiosity and pietism; wandered away from home; had occasional outbreaks of explosive violence, and also attempted suicide.

When admitted to the hospital, he was fairly well nourished, the flesh was firm and the skin warm and dry. Temperature 99.6°; pulse 100, irregular, full, and bounding; respirations 22.

The resonance of the lungs was impaired posteriorly, and the respiratory sounds were harsh and dry. The abdomen was full and tympanitic. The tongue was dry and heavily coated, the teeth were covered with sordes, the breath was foul, appetite and digestion were impaired and he was constipated. The urine was reduced in amount, the urea and chlorides were reduced in amount; there was biliary coloring matter present and hyaline casts. He was very much exhausted, there was a coarse muscular tremor present; gait feeble and unsteady. He was confused, suspicious, apparently apprehensive, and at times violent, destructive and pugnacious. The face was flushed, but the extremities were cold and clammy. His speech was incoherent and bore no relation to his surroundings.

The next day he was still more disturbed; required constant personal attention, did not take food voluntarily; displayed the furtive suspicion of an animal, and believed he was being poisoned. He did not sleep. Between February 1st and 6th he grew steadily worse, did not take any food voluntarily, nor sleep; had to be catheterized, and the amount of urine was scant. He tossed about, muttered incoherently, shrank from every one, and resisted violently everything that was done for him. The right heart was dilated, and on the 6th there was evidence of commencing pulmonary edema. On the 7th the urine was scanty; the heart grew dilated, and the pulse small and rapid, the face pale. He grew steadily weaker and died at 6:15 in the evening. The day after he was admitted the temperature became subnormal; but from that time on steadily rose until the evening he died it rose to 106.4°. The pulse was 160, and the respiration 54. The last day there were only 480 cc. of urine excreted.

*Necropsy* 3 hours after death. The subdural space contained some fluid; the dura was roughened externally, smooth internally. There was extravasation of blood over the inner surface of the dura, near the median fissure, in the parietal region. The dura was closely adherent the whole length of the median fissure, over the convexity of the brain; its vessels were engorged and the sinuses, which were shrunken in caliber, contained dark clots. The brain weighed 1332 gms. The pia was increased in thickness, especially along the vessels. The blood vessels, especially the veins, were engorged. There was some

little extravasation of blood in the arachnoid space over the inferior portion of the parietal region and the posterior portion of the temporal region. At the base the frontal lobes were adherent by their proximal surfaces; the cranial nerves and the blood vessels were in a mat of pial adhesions. The velum was thickened and its vessels were injected; the pillars of the fornix were adherent and the choroid plexuses were granular and cystic. The ependyma of the ventricles was edematous, its vessels injected, and these conditions were most marked in the floor of the fourth ventricle. The white substance was softened, the puncta were numerous and marked; the cortex pale. There were 206 cc. of cerebrospinal fluid.

The heart weighed 283 gms. Its muscle was firm and much hypertrophied. The right side was distended and the cavity filled with fluid blood. There was a large chicken-fat clot in the left ventricle, extending into the aorta. There were dark clots in the pulmonary veins. All of the valves were competent. The cusps of the aortic valve were thickened and atheromatous. The leaflets of the mitral valve were thickened and adherent to the endocardium by fine bands. There was some chronic endocarditis.

The right lung weighed 297 gms. The visceral pleura was thickened. The apex of the lung was slightly emphysematous. There was a small amount of muco-purulent material in the bronchi. The left lung weighed 240 gms. and was in practically the same physical condition as the right. Both lungs were edematous.

The spleen weighed 184 gms. Its capsule was thickened and adherent; its substance was fibrous. The organ was deeply congested.

The liver weighed 1612 gms. Its capsule was fairly free, except at the upper border, where it was quite adherent. Its substance was pale, and the outline of the lobules was poorly defined. It oozed blood on section.

The right kidney weighed 141 gms. Its capsule was slightly adherent. The stellate veins were prominent. The medullary substance was slightly increased in amount. The pyramids were small and distorted. The left kidney weighed 141 gms. and it presented the same physical conditions as the right, except that they were more marked.

The suprarenal bodies showed no evidence of disease.

The omentum was adherent to the parietal wall at McBurney's point. The appendix was absent. The cecum and ascending colon were adherent to the sheath of the psoas muscle for a distance of 15 cms. The descending colon was also adherent to the muscle sheath on the left side, and the transverse colon was adherent to the under surface of the liver. It was very much dilated.

A. K. Admitted February 3, 1902. Man; 35 years old; single; born in Germany; farmer by occupation. No facts in the history of his family were obtained. The patient is said to have been engaged in some very active business as a young man, which he had to give up on account of his health. A sister has been insane since she was a young girl, and the members of the family are spoken of as queer and superstitious. On February 1, the patient was chosen as a juror in a murder trial, in which the neighborhood was much interested. The night after the first day of the trial he did not sleep; and the next day he was noticed to be restless and uneasy. That night he was again wakeful, and toward morning became disturbed, accusing a brother juror of revealing the secrets of the jury-room and of poisoning him. During the day he became violent at times, but would answer ordinary questions intelligently. However, he became more and more confused, suspicious and afraid; and after another sleepless night was brought to the hospital.

He was found to be fairly well nourished, and weighed 134 pounds. His vitality was impaired, the skin was dry and hot; temperature 101.4°; pulse 116 full and bounding; respirations 22. The heart was increased in size, and displaced to the left; the arteries were slightly atheromatous. The lungs were resonant throughout. The abdomen was full and tympanitic, the muscles rigid. The tongue was coated and dry; the appetite and digestion were impaired and he was constipated. He passed 1300 cc. of urine the first 24 hours and nothing abnormal was found in it. He was confused, disturbed and incoherent; suspicious, afraid and disposed to be violent; apparently attempting to ward off the danger suggested by visual and auditory hallucination, and visceral consciousness. He did not sleep the first night after coming to the hospital, and the next morning



was more confused; struggling and screaming, or muttering incoherently to himself. The temperature was 100°; pulse 84; respirations 22. He took very little nourishment, required constant personal attention, and did not sleep. The next day he was no better and the urine showed evidence of nephritis. He grew steadily worse, talked continuously and incoherently, had occasional outbreaks of violence, prompted by fear, did not take food voluntarily, and slept very little. On February 9, after an apparent remission following 6 hours sleep, the right heart became dilated, respirations very rapid and shallow; cyanosis set in, and he collapsed, dying at 12.30 p. m. The temperature did not go above 101° at any time.

*Necropsy* ten hours after death. The body was well nourished. Post-mortem rigidity was present, and there was lividity in the dependent parts.

The dura was thickened and adherent along the median fissure over the whole convexity of the brain, and the fibrous meshes holding the dura and pia together were filled with clotted blood. The internal surface of the dura was roughened by patches of membranous film; its thickness was increased and the vessels were full of blood. In the subdural space there was an ingravescient hemorrhage over the whole convexity; most marked over the frontal portion. The blood apparently came from some of the small branches of the middle meningeal artery. The amount of blood was greatest on the right side.

The pia was thickened, and its vessels were distended with blood, especially over the parietal lobes. The cerebrospinal fluid measured 140 cc. The brain weighed 1205 gms. There was marked dimpling of the surface of the convolutions in the frontal and parietal areas, especially along the median fissure and over the superior parietal lobules. In the Sylvian fissures there was an extravasation of blood in the arachnoid space. At the base there were marked inflammatory adhesions involving both blood vessels and nerves. The velum was thickened, deeply congested, and opaque. The choroid plexuses were granular and cystic. The vessels of the ependyma were deeply injected and there was extravasation of blood underneath the ependyma in the lateral third and fourth ventricles. The puncta in the nuclei and white matter were numerous and prominent. The cortex was thin and purplish gray in color.

The heart weighed 240 gms. Its muscle was firm. The right side of the heart was dilated. The aortic valve was competent but its cusps were thickened and shrunken. The leaves of the mitral valve were also thickened, but the valve was competent. The heart was full of fluid blood.

There were no pleural adhesions. The right lung weighed 624 gms. There was hypostatic congestion throughout the lower lobe. The left lung was collapsed. It weighed 425 gms. There was lobular congestion throughout this lung, and atheromatous patches scattered over the pleural surface, also some calcareous concretions. The lung was easily inflated and no evidence of external injury was apparent.

The spleen weighed 114 gms. Its capsule was thickened and the pulp was firm and dark.

The liver weighed 1361 gms. The gall-bladder was full and its duct patulous. The capsule was adherent; the cut surface oozed blood, and there was some parenchymatous increase.

The right kidney weighed 142 gms. Its capsule was free. The kidney was lobulated. There were numerous scars and infarcts over its surface; the substance was deeply congested; the pyramids were distorted, and there was some medullary increase. The cortex measured 5 mm. The left kidney weighed 155 gms. The same physical conditions existed as in the right.

The intestines were distended by gas. The bladder was full of urine.

*Microscopical Examination.*—Portions of each lobe of the brain were stained by Nissl's stain, by chrome-silver stain and by hematoxylin and eosin. The pathological condition was not different in one hemisphere from that in the other hemisphere in the cerebrum, and seemed to be much alike in each lobe. Much effusion of leucocytes was noticed in the pia-arachnoid, in the walls of vessels, in the lymph spaces and in the gray matter itself. Capillary hemorrhages were numerous in all these localities also, and thrombi were met with in the cortex and in the underlying white matter. Some sclerosis of vessels was also noted.

Nerve cells were shrunken and they over-stained; the nucleus staining darker than the cell bodies in a majority of instances. No spindles are seen. The corpus is granular, finely in places, coarsely in other portions. Degenerated cells are very numer-

ous. In a number of the cells dendrites are plentiful at the apex.

There is an increase of neuroglia in the proportion of 4 to 3. The medulla oblongata does not show acute systemic degeneration or sclerosis.

The pituitary body shows capillary hemorrhages, leucocytic infiltration over large areas, increase of connective tissue with cyst formation, and acute inflammation of the dural capsule.

The pineal gland shows a close packing of little round cells and numerous crystals.

Sections of vessels from the circle of Willis show adhesions of red corpuscles to endothelium, an inflammatory condition of the adventitia, and thickening of the middle coat.

*Liver.*—Capsule adherent. Much infiltration with leucocytes. Thickening of connective tissue. The demarkation of glandular structure is generally lost. A large quantity of detritus noted. Commencing cystic formation.

*Kidneys.*—Much detritus present. Increase of little round cells inside and outside the tubules. Granular degeneration of epithelium resembling cloudy swelling. Numerous capillary hemorrhages present.

*Bacteriology.*—Pericardial fluid gave cultures of *B. coli*. The media inoculated from cerebrospinal fluid remained sterile.

T. W. Admitted September 5, 1899. Man; single; 30 years old; born in New York; book-keeper by occupation. No information was obtained concerning his family, and only the recent history of the patient was known to his friends. He was known to be industrious, quiet and well behaved, and so far as known to his friends had been in good health until a few weeks before the outbreak of the mental disturbance. For a time before his illness he had been under treatment for a "gastric disorder." About a week before coming to the hospital he was noticed to be confused, restless, suspicious, he could not sleep, was the victim of religiosity, and had persecutory ideas. The next day he wandered away, was picked up by the police and put in jail, where he remained two days, until found by his friends when he was taken to the City Hospital in Minneapolis. Two days later he was brought to St. Peter.

He was found to be fairly well nourished, but the flesh was soft and flabby, the skin cold and moist; vitality impaired.

Temperature 105.2°; pulse 142; respirations 28. The heart was not enlarged, but the sounds were indistinct. The lungs were resonant throughout, but the respiratory sound was indistinct in small areas scattered over the lungs. The abdomen was full and dull over the bladder and large intestine. The bowels had not moved for three days and there was retention-incontinence of urine. The tongue was heavily coated and he refused food.

He was feeble physically, confused, dazed in appearance, very much disturbed and incoherent in speech, suspicious and afraid. He passed 1650 cc. of urine in the first 24 hours, which contained some albumin, also leucocytes, and hyaline casts. He was better the next day, after the bowels and bladder had been emptied, the administration of a hot bath, and some food. The temperature fell to 102°; the pulse to 128; respirations 24. He continued, however, to be delirious, restless and sleepless. During the next week there was no material change in his condition, except that the temperature became subnormal. On September 10, vasomotor paresis became apparent, the right heart was dilated, the pulse weak and irregular, and the respiration shallow. The pupils were widely dilated, the eyes glazed, but he still whispered incoherently. There was some tenderness over the abdomen and the bowels moved involuntarily. He had to be catheterized and took no food voluntarily. During the next three days the temperature went down to 97.2°; the pulse was 112, weak and compressible; respirations 24. The lungs gradually filled up and he died during the night.

*Necropsy* 8 hours after death. Rigor mortis present; lividity in the dependent parts. The lips are marked by the teeth and covered with sordes.

The dura was adherent to the bone, slightly thickened, and there were spots of extravasation scattered over the inner surface. The sinuses were full of dark fluid blood. The pia was thickened, opaque along the vessels, and its blood vessels were distended. The brain weighed 1653.6 gms. The pia-arachnoid was distended by gelatinous fluid over the whole convexity, and the distension was so great that the convolutions were flattened and the sulci opened. There were 75 cc. of cerebrospinal fluid. The dura was adherent along the median fissures over the whole convexity. The third ventricle was small and shallow; the foramen of Monro was closed; the velum



thickened, opaque and its vessels injected. The ependyma in the ventricles was edematous, and its vessels deeply injected. The choroid plexuses were cystic. The white substance was edematous and the cortex thin and pale.

The heart weighed 312 gms. The right ventricle was covered with fat, which dipped down into the muscular tissue. There was atheroma about all of the orifices of the heart and the cusps and leaflets were thickened. The valves were competent. The orifices of the coronary arteries were narrowed. The heart was full of fluid blood.

The right lung weighed 811 gms. It was adherent throughout. There was some fibrosis of the lung, hypostatic congestion at the base, and edema throughout. The left lung weighed 561 gms. There were no adhesions; some hypostatic congestion at the base, and edema throughout.

The spleen weighed 124.8 gms. Its capsule was thickened and its substance dense and fibrous.

The liver weighed 1747 gms. It was adherent over the upper portion posteriorly. Its capsule was adherent. The gall-bladder was shrunken; its walls were thickened and adherent. The duct was patulous. The substance of the liver was pale, and there was marked fibrous increase.

The right kidney weighed 156 gms. Its capsule was slightly adherent; the stellate veins were prominent. There were numerous small cyst scars scattered over its surface. The pyramids were poorly defined; the cortex thin and pale. The left kidney weighed 187 gms. Its capsule was adherent; the same physical conditions obtained as in the right, and the pelvis was full of fat.

The bladder was contracted, but contained a small amount of urine.

*Morbid histology of brain cortex:* Stained by Nissl's, the temporal region over-stained readily, or failed to decolorize properly. The molecular layer is increased in thickness but shows a poverty of cells, neuroglial as well as nervous; there is evidently much exudation of non-cellular material. The pyramidal cells fail to show a clear distinction of nucleoli; they barely show indications of cell prolongations, and there is a thick, dark centrosome, which occupies much of the cell in most instances. There is no increase of neuroglia, no nerve-cell re-

placement, but there is much colorless, structureless material between the histologic elements. The vessels are not markedly diseased. Stained by chrome silver, the same area shows a scarcity of nervous elements, in the molecular layer noted above. There are more artefacts than is usually the case in the small pyramidal layer. The neurodendrons which retained the silver show a scarcity of dendrites, especially at the apex. The large neuroglia cells with feathery arborizations are not very distinct, but those with ray prolongations (astrocytes) are unusually distinct. The smaller blood vessels are over-distended with blood, slightly aneurismal and more than ordinarily numerous.

The cortex of the prefrontal area, impregnated with silver chromate shows pathologic changes similar to those just described but greater. The basal dendrites are few. The neuroglia cells are enlarged but show very little filaments.

The motor area, by the same stain, shows pathologic changes similar to those just described. The cell bodies are not noticeably small, but the filaments of astrocytes are better developed than in the prefrontal area, while diseased blood vessels are more conspicuous.

H. R. Admitted November 29, 1899. Woman; a native of Sweden; age 32 years; height 5 feet 3 $\frac{3}{4}$  inches; weight 85 pounds; hair light brown; eyes gray; married and has three children, the youngest being five years; father living, mother died in childbirth. There is no history of constitutional disease in the family. The patient was healthy as a child and there is no record of illness during adolescence. She was married at 21 years of age and her first child was born one year after marriage. She had been peculiar for more than a year, and three months before coming to the hospital, following an abortion, she became anemic and suffered from insomnia. She grew gradually worse, was hysterical and developed persecutory ideas. At the time of admission she believed she was being poisoned, and there were reptiles in her stomach, also that harm was coming to her children. Nutrition was poor, flesh flabby, skin cool and moist, vitality impaired; temperature 100.6°. The heart was normal in size and position, its action forcible and the second sound was accentuated. There was no evidence of disease in the lungs. The stomach was distended and the abdo-

men tympanitic. The tongue was red at the edges with a white coat posteriorly. She did not take food voluntarily, digestion was impaired and she was constipated. Urine analysis, 460 cc. in 24 hours, sp. gr. 1.027 yellow, clear, sediment 3 per cent pus, uric acid .33 per cent, urea 2.5 per cent, phosphoric acid .15 per cent, sulphates 1 per cent, mucin 10 per cent, chlorides 1.5 per cent, biliary coloring matter present. There were leucocyte casts. She had a slight leucorrhœa. The perineum and cervix were lacerated and the latter was eroded, the uterus was large, heavy and retroflexed. There was a slight cystocele and rectocele. The vaginal discharge contained staphylococci. The patient was confused and delirious, so that subjective tests could not be applied. The pupils were equal and measured 7 mm.; reaction to light was slight; accommodation could not be tested. The tongue was protruded tremulously in the median line. The muscles of the face twitched. All the reflexes were exaggerated and clonus was present. Coordination in the arms and legs was poor; she was untidy, stooped and staggered in walking; the manner was listless, and the expression vacant. She was delirious and almost constantly in motion. The movements were choreiform and when not voluntary were in the nature of a spastic tremor. There was auditory and visual hallucination and visceral consciousness. She was the victim of religiosity and had persecutory ideas. She slept very little and her bowels were moved by laxatives and enemata. She was restless, bewildered, did not remain in bed and was constantly disarranging the bed clothing. She would lie quietly for a time, then jump up suddenly, grasp the bedding, or the clothing of the nurse, holding tightly and muttering to herself incoherently. She would, however, answer ordinary questions intelligently. The first two meals she ate voluntarily but afterward had to be fed mechanically and she did not sleep without a hypnotic. She continued to be excited, restless, constantly in motion, became more stupid, passed urine and feces in bed. When not closely watched she would get out of bed and roll on the floor. Occasionally she would become entirely rigid. She was apparently in great fear, but sometimes became aggressively violent, profane and obscene. Two weeks after admission she began to grow weaker and had a diarrhea with four or five stools daily. On the morning of December 12, 1899, she

became more quiet; the temperature became normal and on the 14th, in the morning it went from  $94^{\circ}$  F. down below the register scale on the thermometer. (As nearly as could be determined by measurement afterward, the mercury was at  $90^{\circ}$ .) She was cold, the muscles were rigid, the respirations were shallow, the pulse was weak and quite rapid. The pupils were widely dilated; she laughed and muttered, occasionally tossing her arms about spasmodically. During the night her temperature gradually rose and in the morning was  $102.5^{\circ}$ . The heart's action was weak and resonance was impaired over the base of the right lung. There was marked hyperesthesia of the whole surface of the body; the abdomen was retracted and the special senses were painfully acute, especially hearing. The temperature gradually rose and on December 18, reached  $105.2^{\circ}$ . There was an almost continuous watery discharge from the bowels. She slept very little, but on the morning of the 19th the temperature went down to  $104^{\circ}$  and she took 8 oz. of milk. She swallowed with difficulty, however, and was soon unable to swallow at all; grew more stupid, weaker and the convulsive movements ceased. The temperature gradually rose to  $108^{\circ}$  and she died at 5:55 p. m., respiration failing first.

*Necropsy.*—The body was emaciated, eyes and cheeks sunken, and the muscular development poor. The pupils were equal and measured 6 mm. in diameter. The upper lip was short and the teeth protruded. Rigor mortis was present; there was some discoloration of the abdomen and lividity of dependent parts. There was a small recent abrasion on the dorsal surface of the right foot and the skin of the abdomen was wrinkled. The scalp was fibrous and contained no fat. Externally it was covered with brownish hair and was free from scars and signs of disease. Internally there were numerous hemorrhagic patches. The skull was thin and hard; sutures apparent, diploe absent anteriorly; grooves for sinuses and vessels well marked. Externally the skull was free from scars and depressions. The brain weighed 1232.8 gms. There was considerable thickening of the dura and externally it was very rough and adherent to the skull. The sinuses and vessels were empty. The pia was thickened and injected and at the base its surfaces were matted together. There were 60 cc. of cerebrospinal fluid. The convolutions of the brain were flattened and on the right side the



angular gyrus was poorly defined. On the left side the Rolandic fissure communicated with the precentral fissure, the elements of which were united. The occipito-parietal fissure extended some distance on the surface. At the base the circle of Willis was complete and its vessels appeared free from disease. The cranial nerves were hard and shrunken and were involved in the pial adhesions. The choroid plexuses were granular and the velum interpositum was thickened and injected. The ependyma in all of the ventricles was thickened and injected, but this condition was most marked in the fourth. The vessels in the floor of the fourth ventricle were also deeply injected. The lateral ventricles were distended with fluid and dilated. The centrum ovale was edematous and shrunken. The puncta were well marked. The cerebellum was softened and the pons and medulla were softened and edematous.

The right ventricle of the heart was full of fluid blood, the left being empty and flabby. All the valves appeared competent. The heart weighed 198.4 gms. The left lung weighed 340.1 gms. The upper lobe was emphysematous; the lower lobe was in a condition of hypostatic congestion. The right lung weighed 850.4 gms. There were several nodules and an old scar at the apex. A portion of the lower lobe was in a state of hepatization. The spleen weighed 226.7 gms. It measured 11 x 5 cm. Its substance was fibrous and its capsule adherent. The liver weighed 1474.2 gms. Its capsule was adherent in scattered areas and its substance oozed blood on section. The bladder was full and its duct patulous. The surface of the right kidney was covered with scars and its capsule was adherent, it was deeply congested and oozed blood on section. Parenchymatous increase was marked. It weighed 127.5 gms. The left kidney weighed 144.7 gms. The same physical conditions were present. Both suprarenal bodies were cystic. The appendix was 11 cm. in length, and free from adhesions. The ovaries were enlarged, the right weighing 11 gms., the left 9.5 gms. Both had small cysts on the surface. The bladder contained a small amount of urine.

*Morbid Histology of Cerebral Cortex.*—Sections from the frontal area anteriorly, stained by Nissl's method, showed very little definition between the nucleus and the corpus; the prolongations of the cells were generally unstained. There was

some shrinking of the cell bodies in a majority of cells, and only occasionally the shrinkage was accompanied by a proliferation of neuroglia cells. There was much thickening of the walls of vessels, sometimes their lumen was filled by the proliferation, and the vessel was detached from the surrounding tissue. The nuclei of the capillaries were also much increased in number and the perivascular and lymph spaces were much distended. There were some miliary aneurisms in the vessels, and a varicose condition noted here and there. There was considerable detritus throughout the tissue. The pia-arachnoid, when seen in transverse section, was greatly thickened, covered with hyaline exudation, and filled with small round cells; it was in many places detached and in other places it appeared to be grown into the pyramidal cell zone. The white matter just beneath the gray showed much proliferation of neuroglia cells.

Sections from the motor area, stained by Nissl's method looked much like the preceding, but the prolongations of the cells took the stain better and seemed more numerous. The nucleus was not distinct anywhere, being generally of the same color and degree of transparency as the body of the cell. There was a slight increase of neuroglia. The blood vessels showed all the pathological changes noted in the prefrontal area. The pia-arachnoid also showed the same pathological condition already noted.

Sections of the prefrontal area, impregnated with chrome silver showed an increase of neuroglia cells, the fibres of which appeared very healthy. There was an increase of capillaries, and varicosities of the smaller vessels appeared like sausages, and were disconnected from the surrounding tissues; they were distended with detritus and round cells as well as with a little dark blood. The neurodendrons in general showed a shrunken body, sometimes seamed from internal shrinkage; they showed few basal and fewer apical dendrites. Yet a few large neurodendrons showed the proper number of dendrites covered with gemmulae. The sub-pial zone in general was black with deposits of silver and did not show anything distinctly. Sections from the occipital lobe did not differ in any respect from those of the frontal area anteriorly. Sections from the cerebellum did not take the stain well.

*Morbid Histology of Kidney.*—The glomeruli showed a close packing of round cells. A few of them were destroyed and their places occupied by blood clots. Sections of the urinary tubules showed the tube to be patulous in a majority of instances. The lining epithelium was slightly granular and showed some proliferation; a few epithelial casts were seen. Between the tubules were round cells, closely packed. In some places, where the glomerulus was destroyed, Bowman's capsule had thickened greatly and sometimes succeeded in filling the gap. The connective tissue was greatly increased in various places. The walls of the blood vessels were thickened and the nuclei were very numerous in them. Blood extravasations were met with, frequently forcing the tubes apart, and some detritus was mixed with the blood. The hemorrhages were due to the destruction of larger vessels as well as of capillaries.

*Bacteriology.* — Pathogenic staphylococci, aureus, and albus, were cultivated from the cerebrospinal and from the pericardial fluid. No other bacteria were found.

The record in the case of H. R. is given in detail for the purpose of calling attention to two points. First, the evidence of imperfect structure, presented by the conformation of the convolutions of the brain and the conspicuous manifestations of degenerative changes in the meninges and cortex. Second, the evidence furnished by the condition of the vegetative organs of corresponding and commensurate changes, degenerative in their nature, and similar to those found in the nervous system. The correspondence between the mode of death and the nature of the changes found *post-mortem* in the kidneys is also worthy of note. The morbid anatomical changes in the different organs, noted in the necropsy records given, although they differ widely in some respects, have one condition in common; and that is the constant presence of definite changes in the kidneys; showing that there was impaired capacity for elimination, just as the clinical history furnishes definite and conclusive evidence of intoxication. However, this intoxication was also present in those cases that recovered. Then, too, there was failure in the renal function; but the urinalysis showed that the organic changes in the kidney were not so far advanced; while the history of the patient indicated a lesser degree of brain instability, and greater natural power of resistance. The mental manifestations were

practically always the same—furtive suspicion; unreasoning fear; religiosity and pietism; conditioned in each case by the life experience of the individual, and limited by the boundaries of his mental horizon. In those cases in which there was antecedent mental disturbance, there were present the special sense perversions; the persecutory and depreciatory ideas, characteristic of degeneration. In those cases that recovered, the mental disturbance reappeared in its original form, with the subsidence of the delirium.

Since beginning this paper the histological study of the cortex in the case of T. L., has been completed, and I will refer to it here, because it illustrates so conspicuously the effect of exhaustion in the fulminating cases of acute delirium.

*Morbid Histology of the Brain in the Case of T. L.*—The precentral area, by Nissl's stain, shows capillary hemorrhages in the pia-arachnoid, which is otherwise marked with exudation of little round cells, and shows much increase of fibrous connective tissue. There is much engorgement of the cortical vessels, and a few extensive capillary hemorrhages. The lymph spaces are much distended in places, causing constriction of blood vessels. The increase of neuroglia cells is in the proportion of 5 to 2 of what is found in health, and is most marked above and below the zone of pyramidal cells. The nerve cells are generally shrunken, and 25 per cent of them are in the second and last stages of degeneration. Spindles are not found anywhere; extrusion of the nucleus is common; granular bodies are the rule, but almost entire loss of body is also common. The nucleolus is distinct. Impregnated with chrome silver, the same area shows such marked degeneration that no neurodendrons could be found that had not passed the first stage of degeneration. The capillary hemorrhages are well shown, but the capillaries are not so engorged or distorted as the vessels next in size or larger.

In the motor area, by Nissl's stain, a similar condition to that just described was found. There is much proliferation of endothelial cells in the capillaries, and there is some exudation of little round cells in the lymph spaces. The shrinkage of the nerve cells is from side to side mostly. Thickened obliterated arteries of small size are met with. Degenerated pyramidal cells are less numerous than in the prefrontal region. Chrome-



silver preparations look worse. In the occipital area, by Nissl's stain, degenerated pyramidal cells are less numerous, and there is less proliferation of endothelium in the capillaries; otherwise the same pathological changes are to be seen. Chrome-silver preparations are not distinguishable from those of the pre-frontal area.

When we come to consider that the activities involved in the manifestations of delirium, both mental and physical, are the same in kind as they are in other forms of mental disturbance, it is evident that there is nothing new or peculiar in this mental state; but rather only an exaggeration or excess of what is general, and of what in delirium becomes extreme. Thus, the difference between maniacal excitement and delirium is only in degree; and it is the same of the transition from agitated depression into delirium, whereas in general sepsis from typhoid fever, pneumonia, or other cause, the confusion, constant motion, garrulous incoherence, furor, or muttering, are but exaggerations of the restlessness, peevish irritability, and loquacity, which mark the ordinary involvement of the nervous system in these disease conditions. The mental activity is the interpretation, and the motor disturbance the synchronous expression of the reaction of the organism to the imperious stimuli following the multitude of unrelated impulses liberated in consciousness by the incoordinated impressions coming through the special senses.

Even in the most robust individual, if the existence and persistence of such conditions were possible, exhaustion would rapidly supervene, as it often does under the influence of violent emotion. Therefore, it is not surprising that, when vitality is impaired, and there is loss of sleep and imperfect nutrition, exhaustion should result more rapidly and from slighter causes. In ordinary mental disturbance, and even in maniacal excitement, there are periods of rest; and nutrition is not impaired nor elimination interfered with. Consequently, there is merely perversion of the ordinary cerebral activities; and the amount of energy expended is not in excess of the capacity of the individual.

Now as to the physical aspect of this mental state. In normal cerebral functioning there is a cycle, made up of a period of more or less intense activity, a period of rest and a period of

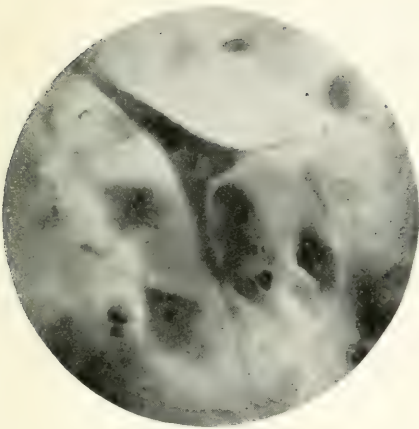


FIG. 1.—Rat. Normal. Nissl. Prefrontal. 1-16 in. O. Healthy looking large pyramidal cells.

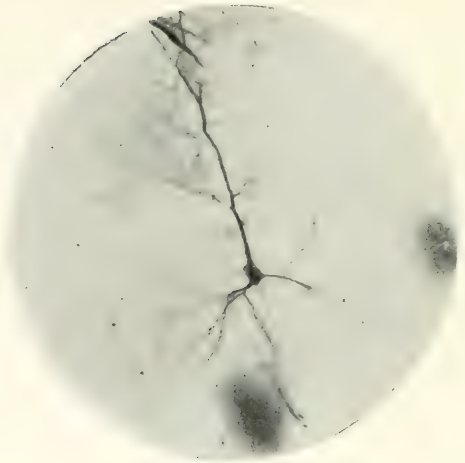


FIG. 2.—Rat. Normal. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Healthy neurodendron.

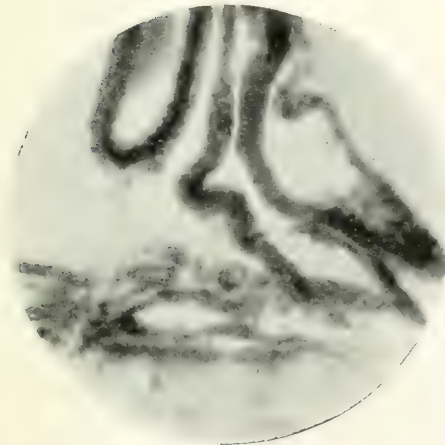


FIG. 3.—Rat. Fatigue. Prefrontal. Nissl.  $\frac{1}{4}$  in. O. Pia-arachnoid. Capillary hemorrhages and leucocyte exudation.

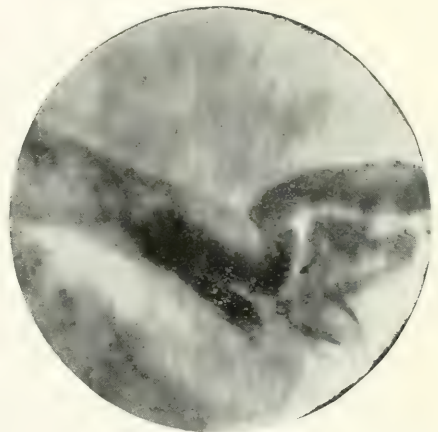
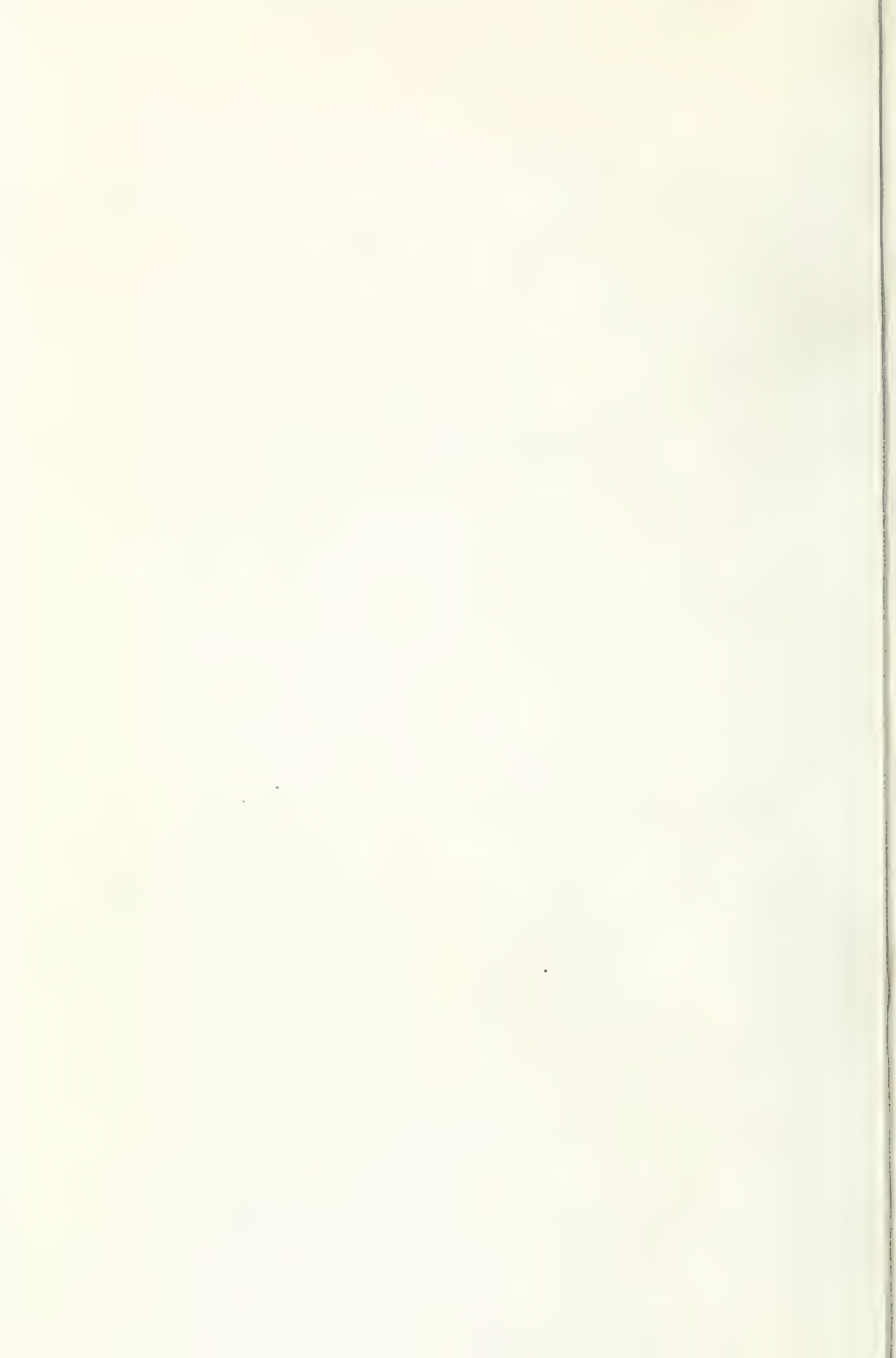
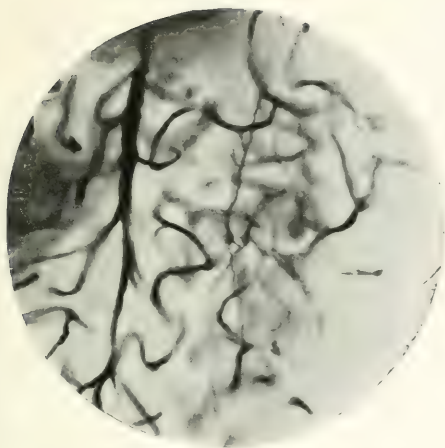


FIG. 4.—Rg. Pia-archnoid in prefrontal region.  $\frac{1}{4}$  in. O. Capillary hemorrhages, and chronic connective tissue increase. Delirium.





■ FIG. 5.—Rat. Fatigue. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Engorged vessels.



|| FIG. 6.—A. K. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Engorged vessels. Delirium.

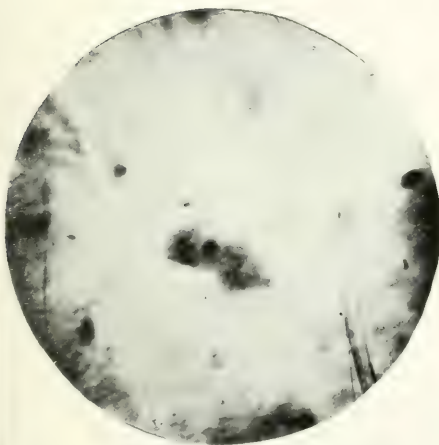


FIG. 7.—Rat. Fatigue. Nissl. 1-16 in. O. A large pyramidal cell in first stage fatigue. Chromatolysis.

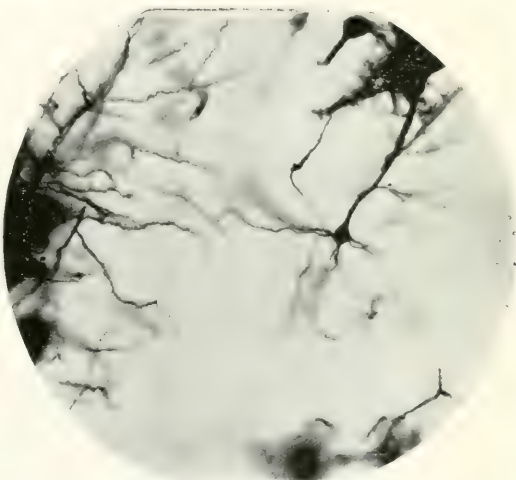
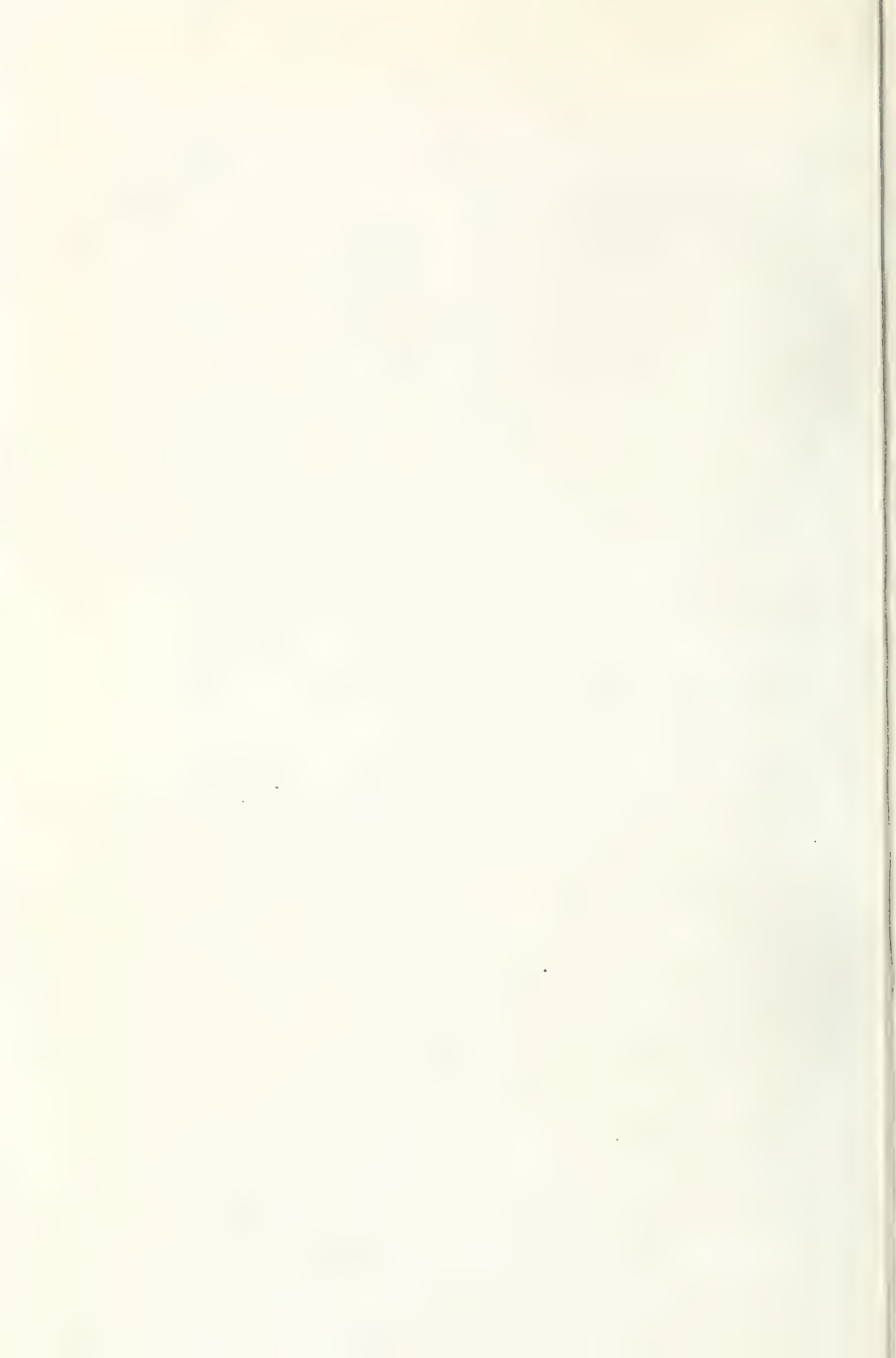


FIG. 8.—Rat. Fatigue. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Neurodendron in first stage fatigue. Part of apical and basal dendrites lost.





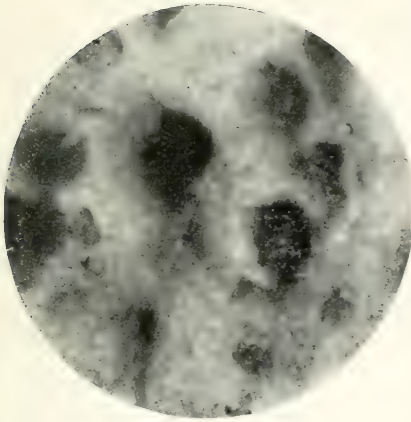


FIG. 9.—Rat. Fatigue. Prefrontal. Nissl. 1-16 in. O. Large pyramidal cells in second stage of fatigue. Chromatolysis and obliteration of nuclear outline.

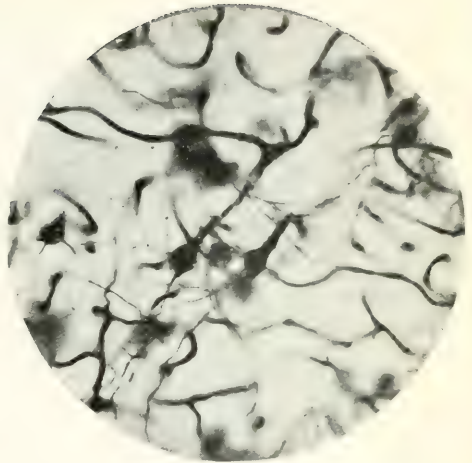


FIG. 10.—Rat. Fatigue. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Two neurodendrons in second stage of fatigue. Many dendrites have dropped out.

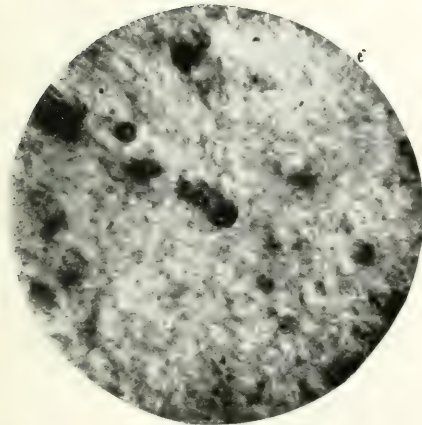


FIG. 11.—Rat. Fatigue. Prefrontal. Nissl. 1-16 in. O. Large pyramidal cell in last stage of fatigue. Spindles and centrosome lost. Nucleolus alone distinct.

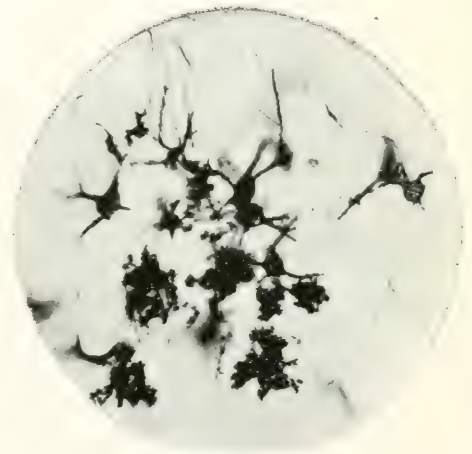


FIG. 12.—Rat. Fatigue. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Several neurodendrons in last stage of fatigue. Dendrites nearly all lost. Much increase of neuroglia present.



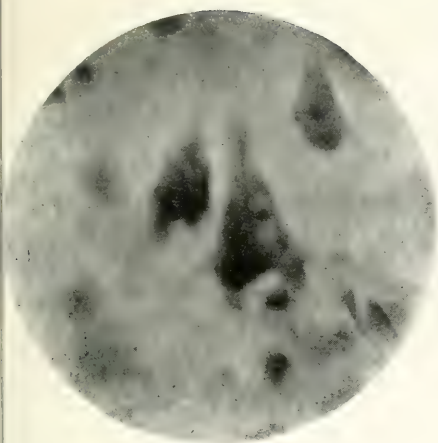


FIG. 13.—L. Prefrontal. Nissl. 1-16 in. O. Large Pyramidal cells in first stage degeneration. Chromatolysis. Slight loss of nuclear outline. Delirium.

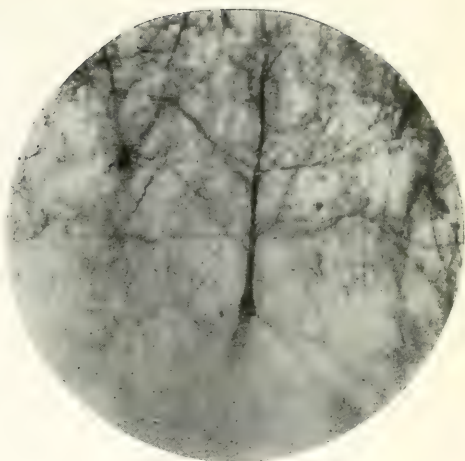


FIG. 14.—L. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Neurodendron in first stage degeneration. Basal dendrites mostly lost. Delirium.



FIG. 15.—D. Motor area. Nissl. 1-16 in. O. Large pyramidal cell in first stage degeneration. Chromatolysis. Delirium.

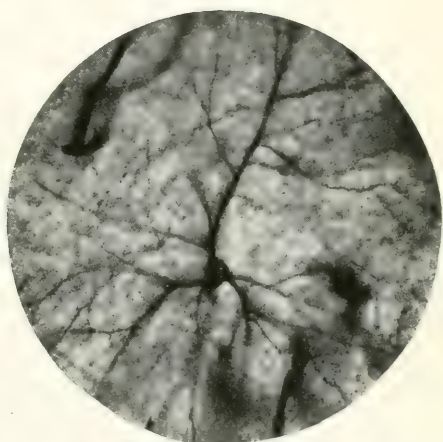


FIG. 16.—D. Motor area. Duerig.  $\frac{1}{4}$  in. O. Neurodendron in first stage degeneration—very nearly normal. Delirium.





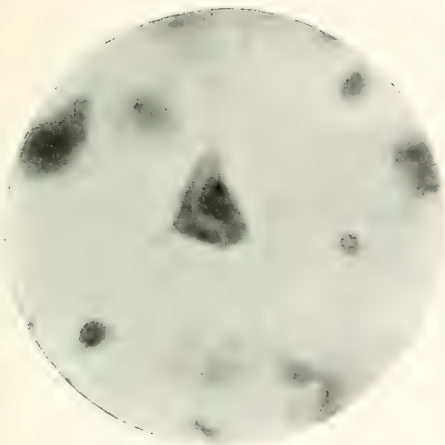


FIG. 17.—Rg. Prefrontal. Nissl. 1-16 in. O. Second stage of degeneration. Chromatolysis,

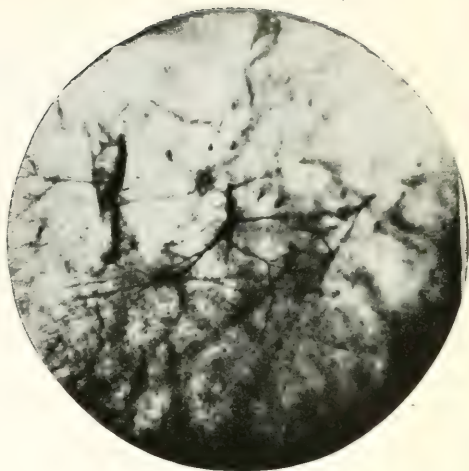


FIG. 18.—D. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Neurodendron in second stage degeneration. Some basal and most of the apical dendrites are lost. Delirium.

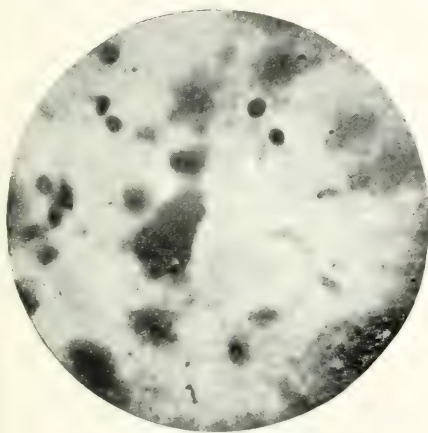


FIG. 19.—A. K. Motor area. Nissl. 1-16 in. O. Large pyramidal cell in second stage of degeneration. Chromatolysis and loss of nuclear outlines. Delirium.

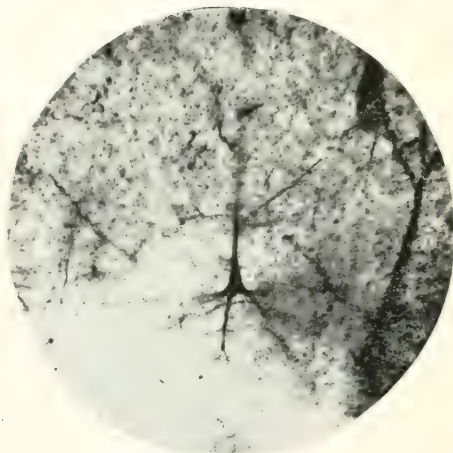


FIG. 20.—D. Motor area. Duerig.  $\frac{1}{4}$  in. O. Neurodendron in second stage degeneration. Much denudation of dendrites present. Delirium.



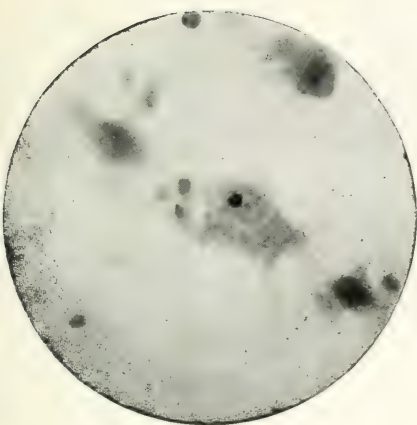


FIG. 21.—Rg. Prefrontal. Nissl. 1-16 in. O. Large pyramidal cell in last stage degeneration. Neuroglia invasion well shown. Delirium.

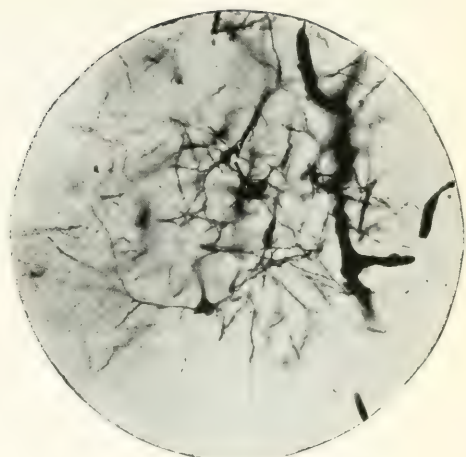


FIG. 22.—Wr. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. 3 or 4 neurodendrons in last stage degeneration. Dendrites nearly all absent. Engorged vessels also shown. Delirium.

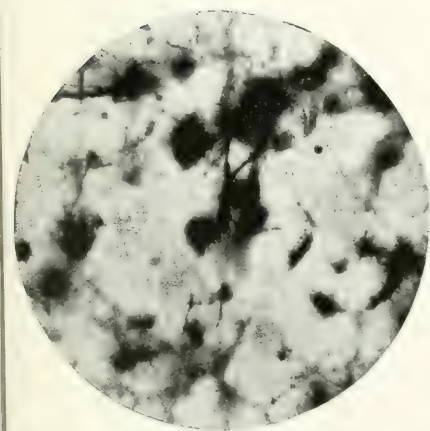


FIG. 23.—D. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Neurodendron in last stage degeneration. Dendrites mostly lost. Much increase of neuroglia. Delirium.

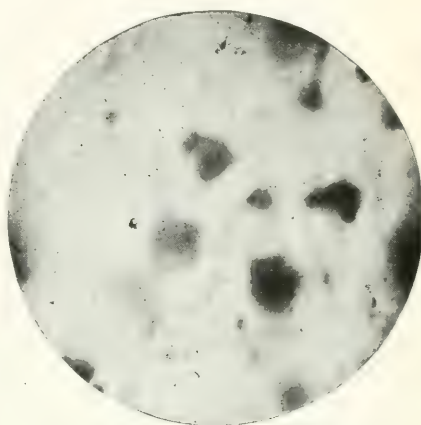
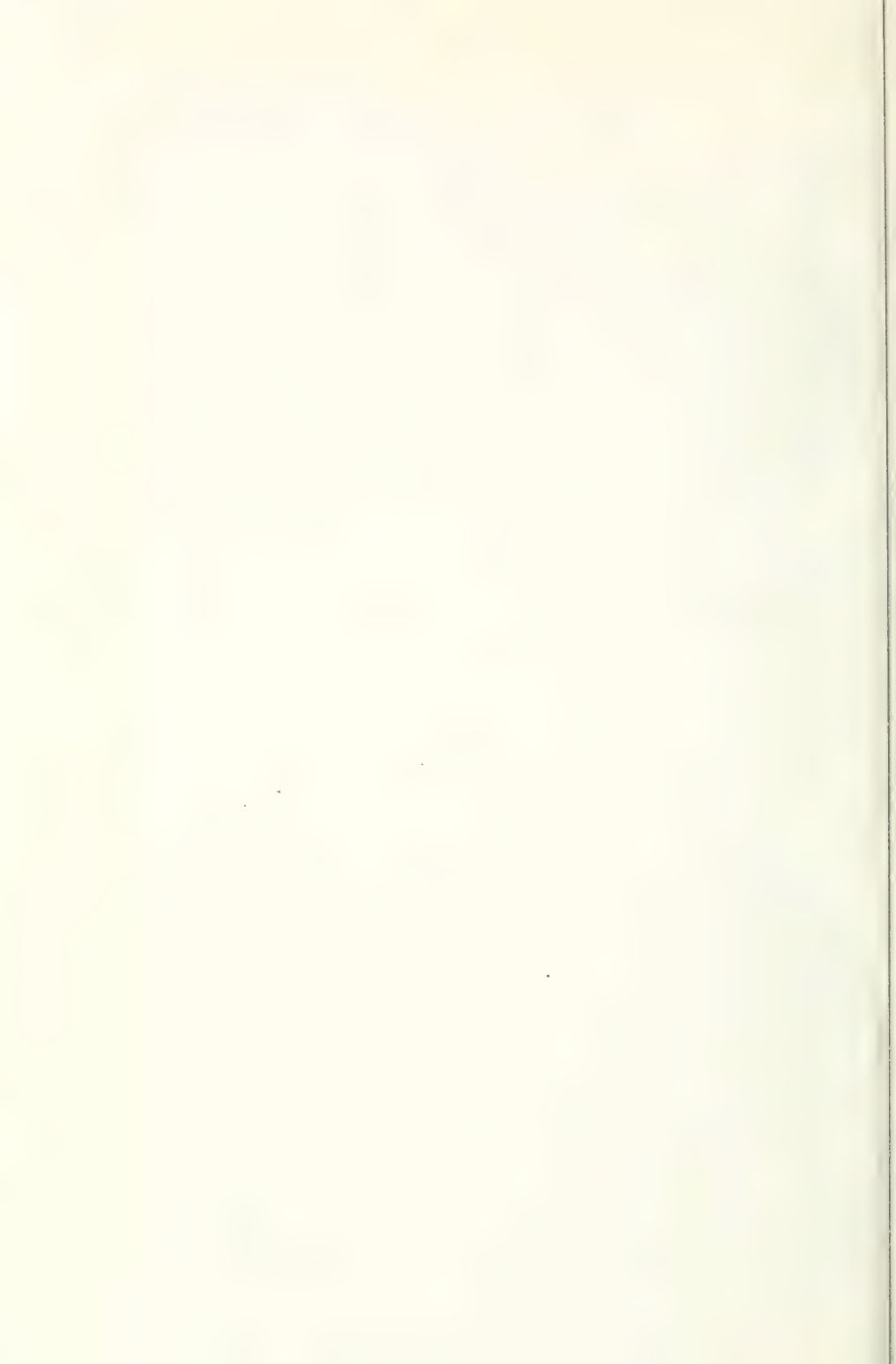


FIG. 24.—A. K. Motor. Nissl. 1-16 in. O. Several large pyramidal cells in last stage degeneration. All demarcations lost between corpus, nucleus and nucleolus.





latency. And so far as we can judge from the confusion which results from excessive effort in one direction, or the attempt to carry on numerous activities at once, all of the functional elements of the brain structure are not engaged in the generation of any one form of activity at the same time. Besides, there are certain elements which seem to stand in psychic relation with the vegetative organs and functions. These two conditions of activity offer an explanation of the fact, that, in cases of insanity, in which death occurs, and even in cases of extreme dementia, in studying serial sections of the cortex in the pre-frontal and parietal areas, it will be found that the number of elements involved in the degenerative change is relatively small. On the other hand, in the cases of patients dying in delirium, the number of elements involved is relatively great, and the degree of involvement more extreme. Besides, the change is destructive rather than degenerative.

In order to determine the significance of these differences, and the extent of the destruction possible, we undertook a series of experiments, using rats, both on account of their resistive power, and because they were plentiful. After establishing a normal standard, as shown in the photographs, the following conditions were developed. A rat was put into the whirligig of a squirrel cage and kept in motion until partially exhausted. He was then killed and the cortex of the brain studied. Another rat was then put through the same process for a longer period, but with intervals of rest. Finally, with others, we supplied as nearly as possible the conditions present in acute delirium,—insomnia, starvation, and constant motion, death resulting from exhaustion. We called the conditions produced the 1st, 2d and 3rd stages of fatigue. The results of these experiments are shown in the accompanying photographs, and along with them are also pictures of the changes found in the brain in cases of insanity dying in acute delirium. It will be seen that the changes resulting from the experimentally produced conditions, are exactly the same as those which have taken place in the human brain as the result of a similar exhaustion from disease. These changes in the cortical cell, in their varying degrees, illustrate the effects of exhaustion from overuse; and, so far as we can determine, are probably only exaggerations of the changes resulting from ordinary fatigue. Therefore, they are

only extreme manifestations of the changes which presumably take place in the cell as the result of habitual activities. So far as we know anything about the effect of exhaustion upon the structure of an organ, there is at first blood stasis, then edema from lymph stasis; and finally disintegration of the structure of the cell. How far this disintegration may be the direct result of overwork, and how much it may be attributed to the intoxication, can only be inferred; but it is probable that one supplements the other, because in the normal individual, enormous and persistent muscular and mental activity, without food or sleep, are compatible with retention of mental capacity, and absence of aberration. The histological changes in the cortex seem to be an indication of the degree of morbid cerebral activity to which they are consecutive. In an unstable brain this morbid activity may result from the intoxication of uremia, or that accompanying bacterial infection; and these changes will vary in degree, not on account of the differences in these different kinds of intoxication; but always in direct proportion with the degree of instability, and the amount of mental and motor activity. Also, the greater the degree of instability in the nervous system, the easier the delirium is set up, and the more violent it is. As further proof of this contention we have the fact of the similarity of the histological changes in the brain in the delirium of general sepsis, uremia, alcoholism, and the so-called delirious mania. Even in the inflammatory cases, where there is an acute encephalitis or peri-encephalitis, the character of the changes in the brain cells does not differ, although their morphology may. The intoxication from the local sepsis is more direct; and besides, the changes in the membranes and the blood supply interfere more seriously with nutrition and elimination, and as a result the process is more intense. But the disintegration, in any case, will be the result of the overwork and excessive activity of the cell (the cytobiosis) and not the cause of it.

## HOSPITAL PROVISION FOR THE INSANE CRIMINAL.

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The expression "The Insane Criminal," in the popular sense in which it is generally accepted, is somewhat of a misnomer. Usually it is considered to embrace all classes of the insane who commit acts of such a nature as to bring them within the purview of the criminal law. An offense committed by an idiot, an imbecile or insane person, is not, however, a crime. Such persons may be dangerous, but cannot properly be regarded as criminals.

It is necessary, however, that the existence of mental defect or derangement should be determined by a court of criminal jurisdiction before a person can be considered irresponsible. Consequently, all offenders, who for the time being are charged with crime, must in one sense be looked upon as criminals, and when insanity becomes associated with unlawful acts the words "insane criminal" have a universal and well-established conventional meaning. There is a decided difference, however, between one who commits an act foreign to his whole character and to his moral nature, and another whose act springs from criminal motives and is in accord with a career of viciousness and depravity, but upon whose life insanity becomes subsequently engrafted as an acquired condition. The former are usually impelled by stress of disease to yield to impulses which often torture them, but finally become imperative and irresistible. The latter have no such scruples.

There are, then, more consistently speaking, two distinct classes of the mentally deranged included in the category of the insane criminal: First, those whose crime is the offspring of disease—they are insane offenders. Second, those who have



been convicted of crime and are subsequently found to be insane while undergoing sentence. Such persons may with propriety be termed insane convicts. The insane offenders are those who have committed some criminal act while in a state of mental disease, whose insanity has been recognized and who have not been tried because of such mental derangement. When such persons are brought to trial before a jury, as they occasionally are, and the existence of insanity is made an issue, they are usually acquitted upon that ground. If at the time of such trial and acquittal their insanity continues and they are found unsafe to be at large, the court consigns them to a hospital for the insane, to remain therein until recovery. In most instances, the mental condition of these prisoners is so evident and their derangement so pronounced that a jury trial is deemed inadvisable and a commission is appointed by the court or referees are named to inquire into their condition; or the court itself may hold an investigation to determine the question. These individuals, if adjudged insane, are committed by order of the court to asylums, and upon recovery are returned to the custody of the courts presumably for trial, but in the majority of instances are released without further formality. This division of criminal offenders constitutes the unconvicted insane. The phrase "The Criminal Insane" therefore embraces two classes, the convicted and the untried or unconvicted. There is a broad distinction between the two. Insane convicts comprise a large number of persons whose proclivities are naturally of a criminal order, many of them being habitual offenders. Their acts are not the result of mental disease or prompted by the delusions of a deranged mind; their insanity is a supervening condition which has no connection with their crimes. They are the inmates of our prisons, penitentiaries, reformatories, houses of refuge, jails and other penal institutions. Many of them have served several terms. They constitute a substantial portion of the "rounders" or recidivists of the prison population. Physically, mentally and morally, as a class, they are below the average man. Large numbers of them are degenerates. These are not distinctly imbeciles but manifest numerous defects of development so that many of them from the first are handicapped in the struggle for existence. They are often subject to periods of transient mental derangement which are produced by

causes which would not ordinarily affect a healthy constitution. Their mental capacity is limited, not alike in all instances nor in all directions, but in different ways. Heredity and environment are both important factors. They are poorly educated and are unfitted to acquire either useful knowledge from books or to take advantage of opportunities afforded by manual training in the trade schools. They are depraved morally, given up to vicious practices, decidedly lacking in ethics, and easily influenced to do wrong. When such a person is once declared insane, his insanity is so mixed with degeneracy that often he is not fit for discharge at the expiration of his term of imprisonment, even though the activity of his mental disease may have subsided. A very few insane convicts belong really to the unconvicted class; that is, their crimes have been the result of mental disease. They have been unjustly convicted of unlawful acts for which they were not responsible. Insanity may have been the ground of their defense and failed before the jury which tried them. Such individuals often fail to recover and consequently they are unfit for release upon the expiration of the term for which they were convicted. The crimes with which they are charged are, as a rule, of a serious nature, such as murders and assaults to kill. Popular prejudice is so strong against them at the time of their trial that the plea of insanity is regarded often as a subterfuge and fails of establishment. The public does not appreciate the fact that a verdict of insanity and commitment to an asylum in most cases would entail a longer period of confinement than conviction and a sentence which ensures, as a rule, only a brief term in prison.

The forms of insanity developing among men in confinement undergoing sentence are different in character from those usually found among the ordinary insane. The active forms of acute mania are not common and the most frequent mental symptoms, aside from those associated with degeneracy and imbecility, are those related to melancholia or chronic mania, with ideas of persecution prominent in each. Under the regular regime of hospital life these symptoms subside in a measure, although there still remains an atmosphere of suspicion and distrust which is productive of irritability and ill will. Assaults to do bodily harm are likely to be planned and to be carried out. Delusional ideas that the patient is aggrieved or

injured breed an inclination to take revenge for imaginary wrongs. A considerable number of the inmates of our prisons, reformatories, penitentiaries and other penal institutions are annually found to be insane while undergoing sentence. In many the seeds of mental disease have been sown before admission. Heredity, dissipation, deprivation and vicious habits have been contributory as causative factors in its production. Insanity in many cases has existed before commitment, but has been unrecognized. The State hospitals for the insane are not proper receptacles for these cases but in most of our smaller States it is the only provision that can be made. When their insanity becomes evident in prison, their terms of imprisonment are still incomplete and during the continuance of such terms and usually for a long time subsequently they need secure custody. If such persons remain insane, it is not wise to keep them in prison to be released when their terms expire, and consequently they must be placed where they can be detained until recovery takes place or their mental condition becomes so modified and improved as to permit of their being cared for by friends who will undertake to provide for them safe custody and proper maintenance, provided that they are reasonably safe to be at large. Special hospitals, therefore, have been erected in some States for the care of these insane convicts. Obviously it is of importance that the prison physician should be alert to discover the existence of insanity among prison inmates and, when it arises, to commit them to a hospital for the insane rather than to ignore the existence of these cases in prisons and allow these individuals to remain there to be turned loose upon the community at the expiration of their terms. Herein is made plain the necessity for the existence of the special hospital. The establishment of such an institution, in the nature of things must result in the indefinite detention of many insane persons with dangerous delusions who otherwise would be set at large. It is desirable that such a hospital should be separate from the prison, not of necessity far removed, but under the management of an independent head who should be a physician experienced in the care of the insane. If the institution is designed to care for the unconvicted insane as well, it should be still further removed from proximity to the prison and be wholly disconnected therefrom. The retention of insane con-

viets in prison imposes anxieties and burdens upon prison wardens and interferes with discipline. Such individuals are not amenable to ordinary methods of correction and are turbulent and unruly. Their presence embarrasses the proper administration of schools of letters and of those for manual training. Many of them are homicidal and dangerous both to themselves and others. They introduce an element of great risk in the prison population where the inmates have access to tools and instruments which may easily be converted into weapons of offense. The result is that the insane, if troublesome, are locked in cells for the refractory and often without care and without oversight. The wretched conditions found in some county almshouses before the adoption of State care are often paralleled and has led to official investigations both in the prisons of this country and abroad. To retain such individuals is unjust to the convict himself, who is entitled to be provided for as are other citizens; that is, he should have hospital care if in need of it, or proper custody where custody alone is required. The insane, the epileptic with maniacal paroxysms, and the imbecile, should for the sake of proper reformatory work, if nothing more, be taken out of the prisons. They can serve their terms just as well in a hospital for the criminal insane and when they have done so, if they are reasonably fit to go at large, they can be released; otherwise they can be indefinitely detained.

Convicts should not be committed to ordinary hospitals, if the provision of a special institution is practicable.

Friends of patients in the general asylum for the insane are unwilling to have them associate with convicts who are often vicious and depraved. At the present time these asylums aim to be hospitals in fact as in name. Open doors and absence of visible restraint and the semblance of home life is the end sought. The manner of their architectural construction and their method of management does not fit them for the criminal insane. To introduce, then, an element of population which requires locks and bars, where every effort is being made to discard them, is taking a step in the wrong direction. The criminal element is inclined to be a turbulent one. They are naturally at variance with law and order and impatient of restraint. Their delusions also render them suspicious of those around them. They are apt to harbor delusions of persecution and to hold the hospital au-



thorities responsible for what they consider unjust detention. Some separate place of safe custody should therefore be provided where all convicts as well as the dangerous insane can be housed.

There should be, however, in all large States, a flexibility of the laws so as to permit the ready transfer from the criminal asylum to the general insane hospital of convicts who are not habitual criminals, whose terms have expired and who are thought proper cases for such transfer. Many cases become quiet and inoffensive with lapse of years and subsidence of disease or the supervention of dementia. No individuals undergoing sentence should in any event be transferred, but only suitable examples from the list of term-expired convicts. For instance, persons of previous good character, whose crime has been the product of mental disease and who have been wrongly adjudged guilty by the courts might be proper cases for transfer, such action being dependent upon their history and the absence of dangerous delusions.

The courts are often too indifferent concerning the mental condition of persons charged with crime who may be brought before them, and conviction follows without any investigation into the mental condition or antecedents of the culprit before the bar. Numerous cases occur yearly of commitments to prisons of persons upon whom the stigma of a convicted felon should never have been placed.

There should also be an opportunity afforded for the transfer to the criminal asylum, from the State hospitals, of all persons with criminal dispositions and histories or who have previously been inmates of penal institutions or of a criminal asylum, provided that they possess vicious tendencies and are of the criminal class. Homicidal and dangerous individuals should also in like manner be transferred. The chief object in the erection of a hospital for insane criminals would be to free the penal institutions from all insane convicts, and secondly to relieve the other hospitals of the criminal and dangerous insane. Hospitals of this character are now in operation in the States of New York, Michigan, Massachusetts, Illinois and North Carolina.

An attempt has been made in some States to provide for the criminal insane by the erection of special wards in connection either with prisons or with hospitals for the insane. Both methods have their advocates, but the results obtained in either

case are not considered satisfactory. Where institutions have one or two wards of this kind, the numbers contained in each must necessarily be few and consequently there cannot be a proper classification of the inmates. The closer degree of custody and other forms of restraint which must be exercised are in sharp contrast with those in use in other portions of the hospital. There should, therefore, if possible, be a separate and special hospital for the convict and criminal insane. Few States have a population of insane criminals—the convicted and unconvicted—large enough for the maintenance of a hospital for each, so that, as a rule, it will be necessary to combine the two classes. With a flexibility in method of transfer from the general hospital to the special one, and *vice versa*, substantial justice would be done to all interests and safe custody be assured.

As a result of the transference of cases of insanity from the penal institutions in the State of New York to Matteawan, and detaining there beyond the expiration of their terms those unfit to be at large; and further by receiving court cases, the State asylum for insane criminals far outgrew the limits of the new and enlarged buildings opened in 1892 for the custody of this class. The accumulation of patients detained over time, at the Matteawan State Hospital, soon became of large proportions and helped to crowd the institution. The population finally grew to 765 and was fast increasing when opportunity was taken of the need for new buildings to create a division between those convicted of serious crimes—felonies—and those insane but unconvicted. In the latter division were also included those charged with minor offenses, as well as all females. New York, therefore, has now two institutions, one for male insane convicts convicted of felonies and the other for court cases, and for those who have committed petty misdeeds. In both institutions patients are detained over time if unfit to be at large, when their terms expire. At the time of our greatest overcrowding, as a measure of relief, the State Commission in Lunacy transferred a large number of term-expired convicts to the State hospitals. These hospitals protested against receiving them and often absolutely declined, stating they had no vacancies for their reception. By order of the State Commission in Lunacy, however, the general State hospitals relieved us, under protest, of many such patients at the time of our greatest over-

crowding. There are today, in the State of New York—in Matteawan, Dannemora and the general State hospitals—probably over three hundred and fifty such cases.

As we have stated, it is a serious evil to allow the insane to remain in penal institutions and to be liberated at the expiration of their terms. It is also undesirable for the convict insane to mingle with the ordinary insane; hence a separate asylum for their custody becomes desirable, where they may be indefinitely detained, so long as their conditions require it. A large proportion of these people are dangerous either to themselves, to property or to others.

Medical officers in connection with prisons should be qualified to detect cases of insanity and should examine all inmates with a view to determine their mental condition. Many convicts are afflicted with insanity in prisons, whose mental state is never recognized, or at least not acknowledged, and who suffer from consequent lack of the most ordinary care and treatment. It should be a mark of discredit to a penal institution that it never commits an inmate to a hospital for the insane. Such inmates are surely to be found in every prison and an omission to certify to their mental condition and to transfer them to an asylum, implies either lack of proper oversight or wilful neglect on the part of prison physicians and officers. If, upon examination, only a few, or even should large numbers be found to be deranged, the prison ought not to be considered as responsible for having made them insane. The family record may reveal that mental disease has affected brothers or sisters or close relatives. Their own history will often show that before conviction such individuals may have been inmates of some hospital for the insane. Heredity, early environment and evil habits play a much more important part than the severity of penal discipline. The prison authorities often hesitate, however, because it is feared that a stigma may be placed upon the institution if it becomes known that insane persons are found therein. On the contrary, they are morally accountable if they continue to allow insane men to remain in prison whose proper place is in a hospital.

A resolution of the Medico-Psychological Association was presented to the National Prison Association at its Annual Congress, held at Indianapolis in 1898. This resolution recom-

mended that better facilities be afforded for the detection and segregation of all of the insane coming into the custody of the prisons of the United States. Action to this end should be regarded as a measure of general public interest. If, as a matter of government policy, the insane are to be cared for by the State or even by the counties, then the dangerous and the criminal insane should at least be provided for in some home where their safe custody would be assured not only during the period for which they were sentenced but beyond that time and for any subsequent period during which they are unsafe to be at large. The predominant object to be attained is the protection of the community, while incidentally medical treatment and care are provided for the individual.

There is another aspect of the question of caring for the insane in prisons which has become a matter of importance. Criminals are a great burden upon the community everywhere. Many of them are of alien birth and many others are of foreign extraction. Congress has recently enacted measures amending the restriction of immigration of the defective classes, which interposes a bar to lunacy and crime coming to us from foreign lands. America has long been a refuge for persons of this class. Some of them come of their own volition; others are assisted by members of their own family, by prison associations, by benevolent and other societies and at times by municipalities. Some of these immigrants are habitual criminals; others, who are poorly equipped mentally, soon become criminals. Numbers of such cases have come directly under our own notice. Discrimination is required to sift from prisons all such inmates, particularly degenerate examples of European origin. An important feature of the new law is the extension to three years of the period of probation during which insane or criminal aliens who have landed in contravention of our laws, may be returned to their native countries. This feature of the act affords opportunity for investigation into the mental condition and the antecedents not only of inmates of prisons but of all institutions for the defective, dependent and criminal classes. Provision is made by which the government may from time to time obtain information from the officers of penal, reformatory or other institutions concerning aliens in their custody. Agents in the government service may be detailed to secure facts from



such institutions through which the enforcement of this law may be facilitated. Wardens and superintendents are to be instructed as to the provisions of the immigration law relating to the detection and deportation of all insane, defective and criminal aliens. One glance at the inmates of any correctional institution for adults will show the presence of degenerative types, many of whom are of alien birth.<sup>2</sup>

There is much discussion everywhere at the present time upon the subject of degeneracy and crime. The two are very often closely connected. The public mind frequently becomes stirred to wrath by the occurrence of dreadful acts of criminality, and remedies are suggested by experience which tend more and more toward the final accomplishment of remedial measures. Our prisons should be placed in a position to do the best work for the reclamation of every individual susceptible of being helped. They should be relieved of all imbeciles, epileptics, idiots, paranoiacs and insane inmates. Penal institutions should be educational and reformatory for the first offenders and custodial for the habitual criminal. It is impossible to do good work in the first direction unless greater attention is paid to the needs of the individual. How can any benefits result from prison discipline unless the character of each inmate is known? If the prisons and reformatories are to accomplish anything of lasting good it would seem that there should be an oversight of those committed to their care sufficiently thorough to discover the existence of mental disease.

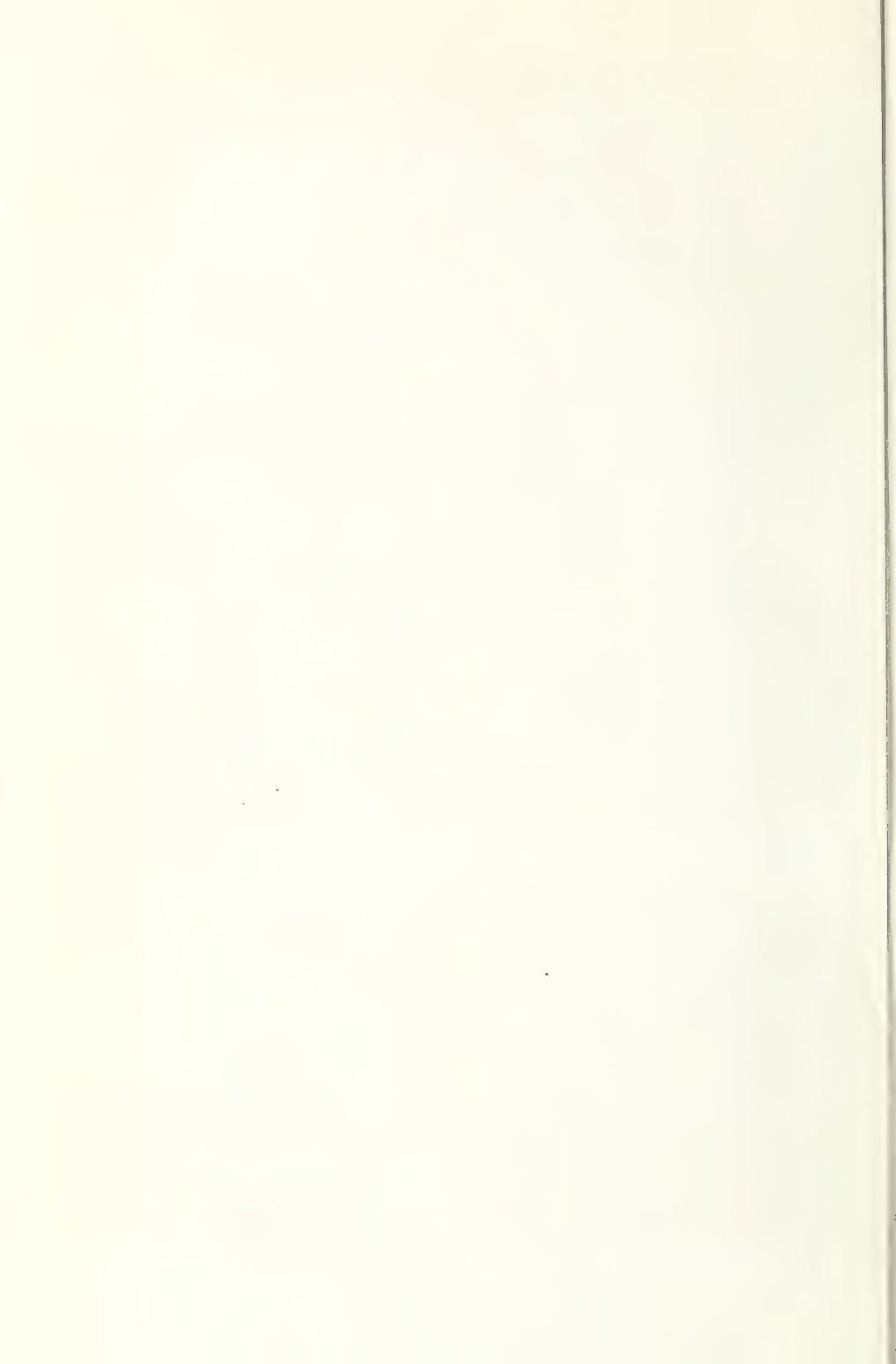
Even considering prisons as mere places of detention without any purpose to educate or reform, they have no power to retain dangerous criminal lunatics beyond the date fixed for their discharge at the expiration of their sentences. Such cases should therefore be brought to the notice of the courts and upon an order based upon a medical certificate these individuals should be committed to a special hospital for the insane, in which they should be detained until they have recovered or at least have become reasonably safe to be at large.

We would, therefore, in the first place, urge greater vigilance upon the part of prison officers to detect the existence of

<sup>2</sup> We herewith present photographs showing two groups of such cases at the Matteawan State Hospital. One is composed of Russians and Poles, or natives of Central Europe, the other exhibits a group of Italian inmates.



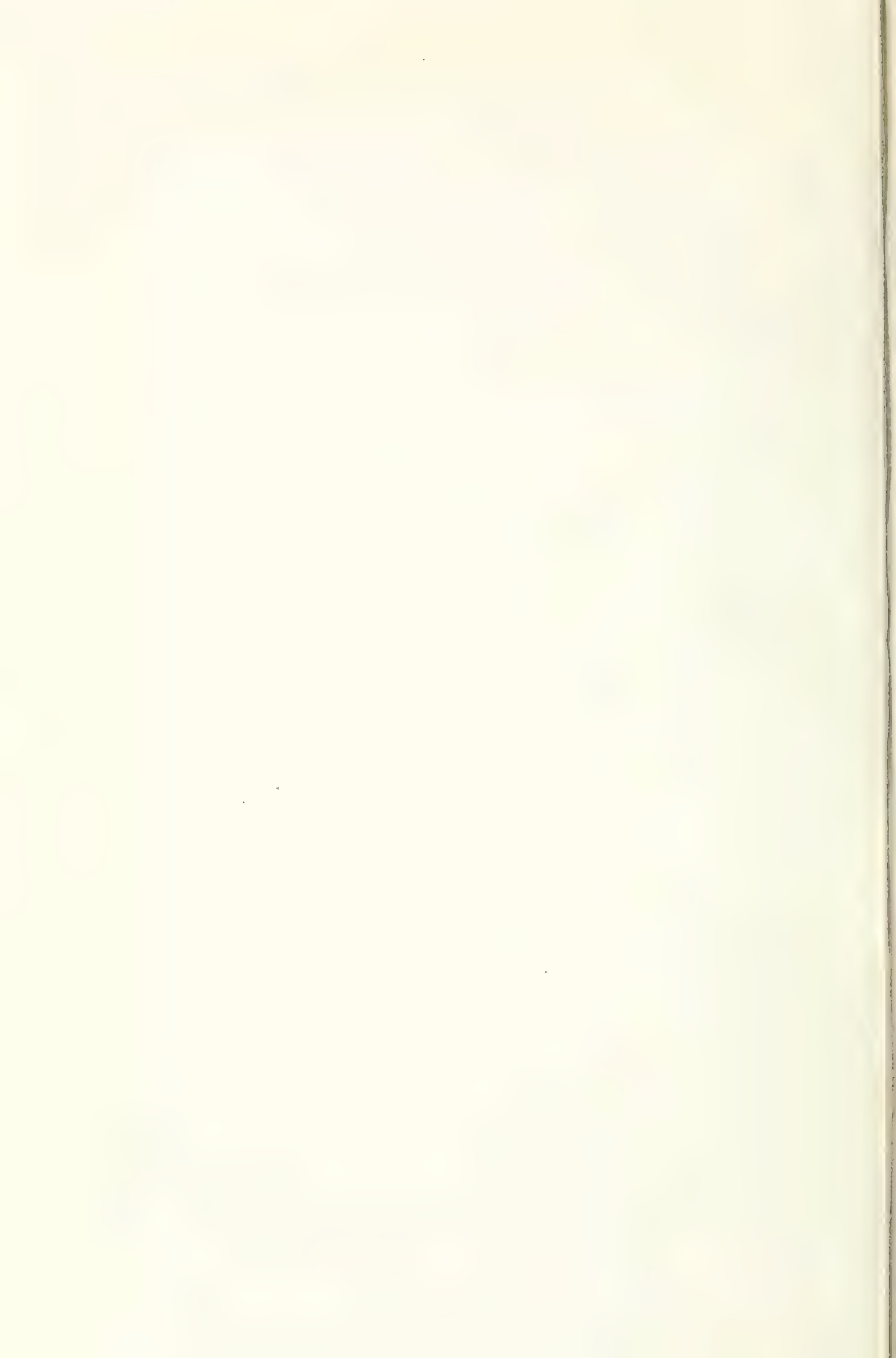
ITALIAN INMATES AT MATHEAWAN STATE HOSPITAL.





Russians, Poles, or natives of central Europe at Matheawan State Hospital.





insanity among convicts serving time. Secondly; the erection, where practicable, of special hospitals for the criminal and dangerous insane; and the commitment thereto by judicial order of all belonging in this category, where they can be kept in safe custody until they are fit to be released. Thirdly; in all institutions for the care of criminals and for defectives of every class the exercise of greater vigilance in ascertaining the personal history of each inmate with a view of detecting and deporting all aliens who may have entered this country in violation of our immigration laws.

## RECOGNITION OF THE INSANE IN PENAL INSTITUTIONS A FACTOR IN DIMINISHING CRIME.

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*By Frank W. Robertson, M. D.,*

*General Superintendent New York State Reformatory, Elmira, N. Y.*

It is my wish to direct the attention of the members of this Association to the fact that better protection is afforded to society as greater care is exercised in the recognition and treatment of the various forms of insanity existing among criminals confined in penal institutions.

For many years, very little attention was given to the practice of psychiatry, in prisons, and it is only within a comparatively short time that organized effort has been made to care for the criminal insane. Previous to the year 1859, this class of prisoners was cared for in the Asylum for the Insane, at Utica, N. Y., from which institution they were subsequently transferred to the Matteawan State Hospital, at Fishkill Landing, N. Y.

The first hospital opened for the especial care and treatment of the criminal insane, in the United States, was authorized by an act of the New York State Legislature, passed in April, 1855, providing for a commission to be appointed by the Governor; and this commission was directed to make separate provision for the custody of insane prisoners. In due time the necessary funds were appropriated, and in February, 1859, an asylum for this purpose was completed and opened at Auburn, N. Y.

In November, 1900, the Dannemora State Hospital for the Criminal Insane was opened for patients; this hospital is located near the Clinton state prison, Dannemora, N. Y.

There are at the present time, especial asylums for the care of insane prisoners, in the States of New York, Massachusetts, cclii

Illinois, Michigan, and North Carolina. In the following States a department for the criminal insane is included within the walls of the prisons: Iowa, Ohio, Maine and Connecticut. So far as I have been able to ascertain there also exist especial asylums in England, Scotland, and Ireland, and at Kingston, Canada. There are likewise especial asylums in Saxony, Baden and Hungary. Prussia maintains, at the Moabite prison, an annex for insane prisoners. France provides special quarters for male insane prisoners, the females being sent to departmental asylums. Belgium is now erecting a new separate asylum. In 1895, Norway established a small asylum for this purpose, and Italy maintains three especial asylums, accommodating about six hundred inmates.

From the above it will be seen that it is only within the last fifty years that any decided attempt has been made to remove the insane from the criminal population and afford them the care and treatment to which their mental condition entitles them. With the establishment of departments in prisons, and the building of especial institutions for the treatment of the criminal insane it became possible to humanely and scientifically care for this unfortunate class. But as the number of these institutions has increased, and greater opportunity for advantageous treatment thus been made possible, it seems to me that we have neglected one very important detail and omitted a necessary factor in securing to the insane criminal the treatment which he should receive, and the protection to society which would result from his being incarcerated in an asylum where he would be detained until he recovered; whereas if he remained in the prison, he would be discharged at the expiration of his sentence, without regard to his mental condition. We have failed to provide skilled physicians whose duty it shall be to visit the penal institutions for the purpose of discovering the insane. Of course there are a few institutions having physicians in charge of their medical departments who have had previous experience with the insane, and these institutions will usually be found to have transferred a larger number of insane criminals to hospitals for treatment than prisons not so favored. In many penal institutions no decided attempt is made to separate the insane from the general population; the management even going so far as to consider most cases acting in an irra-



tional manner as malingerers. By careful observation the experienced alienist will usually be able to discriminate between the true and the false; and it has been my personal experience that most of those who have been characterized, by guards and keepers, as being malingerers, have proven to be true cases of mental alienation and, in instances where suitable provision has been made for them, should be treated in especial hospitals.

In some instances, where institutions have made a careful analysis of their populations, and a consequent transfer of defective cases to State hospitals has taken place, well meaning but misguided enthusiasts, without at all understanding the existing conditions, have criticised the management of the institutions, alleging that the necessity for transfer was more likely due to defective methods of discipline than to the recognition of really insane subjects. Such criticism naturally tends toward the engendering of a feeling of extreme caution on the part of the governing powers of prisons, that transfers shall be made only in very marked and advanced cases whose condition has become patent to all.

It should be our duty as medical men to seek to enlighten the community regarding the insane and to inform them of the prevalence of insanity and degeneracy among the criminal classes; and the transference of considerable numbers of insane prisoners to suitable hospitals should merit approval rather than censure as showing that the inmates have been studied as individuals and not as a class.

We believe that the scope of this work should be very broad, including all forms of mental disease, and that imbeciles, epileptics and paranoiacs should all be cared for in hospitals especially designed for the treatment of this class. Such investigations as we have been able to make in regard to this subject would appear to confirm the opinion that especial departments for the insane, as connected with the prison proper, have not met with success; and it is the writer's opinion that these hospitals should be entirely separate, and preferably placed at some distance from the prisons in order that the general atmosphere shall be that of a hospital, and not that of a prison.

While the percentages of recoveries and marked improvements given out by institutions which treat this class are not so large as we could wish, owing no doubt to the fact that nearly

all the criminal insane come from a markedly degenerate class, with a bad heredity, still there are a considerable number who receive some benefit, and not a few recover after treatment who, were they to be retained within prisons without the skilful treatment which the physicians of the hospital are able to afford, would eventually develop into chronic cases.

By reason of the fact that if their condition is suspected, they cannot consistently be punished for their misdemeanors, the presence in penal institutions of these insane and degenerate classes offers a serious obstacle to the preservation of good discipline, an embarrassment to the disciplinarian and a constantly disturbing element in the matter of the progress of other inmates who may be trying to get along well and make good records. It is the writer's belief, founded upon experience in the reformatory, that the great bulk of so-called incorrigible prisoners, variously estimated at from 10 per cent to 20 per cent of the total population, are more or less mentally affected, and hence have a limited responsibility. The writer can safely say that the discipline in the reformatory at Elmira has been greatly improved by a careful examination of this class and a subsequent transfer to the State hospital at Dannemora, of those found to be suffering from mental disease, and that if there existed an institution to which the imbeciles, idiots, epileptics, and degenerates could be transferred, the problem of prison discipline would be considerably simplified. Of course we do not mean to say that all incorrigible prisoners are of necessity suffering from mental disease, or degeneration, but that this is true of a considerable number of them there can be little doubt.

These degenerate classes should not be retained in a prison, to be eventually turned again into the community at large, at the expiration of their sentences; but provision should be made to secure to each prison the services of a competent alienist; or if this be found not practicable, all the penal institutions in a State could periodically be visited by an alienist whose duty it should be to systematically study the population, and recognize and cause to be transferred to especial institutions those belonging to the markedly degenerate classes above mentioned. In this way society would be protected from the possibility of having the insane criminal returned to its midst; for of course

we assume that when he is transferred to a hospital it is understood that he will be there retained until it is considered safe for him to be at large. We are constantly hearing of the recidivist criminal, who has been many times sentenced to prison—in some instances perhaps as many as eight times. I am positive that a careful examination of this class would result in the discovery that quite a number of them are insane, or are so defective that they should be transferred to an asylum to be there permanently retained.

By this means also, much expense and loss, consequent upon their depredations during their short periods of freedom between convictions, would be prevented, as would also the costs entailed by their apprehension, trial, and transportation to prison, for each new crime committed. And another important advantage which would be secured by this permanent retention would be that it would prevent their further increase in numbers by propagation of their species.

In this connection I trust it will not be out of place to call attention to the need which exists for a most careful medical analysis and examination, by competent alienists, of persons who come before the courts charged with crime; thus insuring to those who are especially defective a proper recognition of their condition. If this were done those manifesting criminal tendencies who were found to be suffering from mental disease could be committed directly to institutions designed especially for their care and treatment. The writer has in mind the case of J. W., aged 24; born in the United States; temperate, no history of syphilis; common school education; lived in a small village until he enlisted in the army and went to Manila, in 1899. While in the Philippines he had an attack of malaria; and he has also stated that he suffered from an attack of insanity of short duration. His mother stated that after his discharge from the army he suffered from "fits." He was discharged from the hospital in Manila and returned to the United States in the summer of 1901. In April, 1902, he was arrested for burglary; was confined in jail for five months, and was then tried, pleaded guilty and was sentenced to Elmira. During the trial no symptoms of insanity were noticed by the jailors; but upon his admission to the reformatory, on October 28, 1902, it was noticed that he acted strangely. The judge who sen-

tenced him was communicated with and, upon his request, the prisoner was returned for re-sentence. He was then transferred to the Willard State Hospital for treatment and, in December, 1902, he was transferred to the Matteawan State Hospital. Upon admission to the Willard State Hospital it was found that he was confused, talked in a rambling manner; orientation was defective both as to time and place; he believed he was in Manila; did not remember returning from Manila; heard voices telling him to go back to his regiment; said he saw his brother in his room "last night." While he was in the Willard State Hospital he remained confused and depressed; at one time was suicidal; heard voices talking about him and calling him vile names; at times was restless and uneasy. I believe he is still under treatment at the Matteawan State Hospital.

A number of cases similar to the above have come to the writer's notice during the past four years.

To summarize: How may the recognition of the insane in penal institutions best be made a factor in the diminution of crime? The writer will say: First, by the establishment, in every State, of separate and especial institutions for the insane, and for defectives who exhibit criminal tendencies; the populations of such institutions to be held in custody until such time as a competent medical tribunal shall determine that they are fit to be returned to society. Second, by examination by competent alienists, prior to sentence by the court, of those accused of crime; the report of the physician to be laid before the court to assist in reaching a proper determination of the case. Third, the appointment upon the staffs of all penal institutions of competent alienists, whose duty it shall be to recognize and secure the transfer to hospitals of those so markedly defective as to require such treatment. If it be not practicable to place an alienist in each institution, then the writer would suggest that an alienist be appointed in each State, whose duty it shall be to visit its penal institutions. The warden, or superintendent of each prison should keep a careful record of each prisoner known to have exhibited any mental idiosyncrasy; this information to be furnished the alienist upon each visit.

In order to adequately protect society against the criminal we must rid ourselves of the old idea that the punishment must fit



the crime, and by studying each prisoner, be able to single out those whose defectiveness is such that they should be treated in especial hospitals for the insane criminal, as distinguished from those who may be treated upon the old lines, in our State prisons, or those believed to be susceptible of improvement by means of the more modern treatment afforded by the reformatory.

## THE MIND OF THE CRIMINAL.

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*By Robert B. Lamb, M. D.,*

*Superintendent Dannemora State Hospital, Dannemora, N. Y.*

A scant quarter of a century has gone by, since the careful observation and analysis of the criminal was primarily instituted. Today, there are few nations not making investigations as to the reasons for this anti-social being. Strangely enough many investigators in their zealous search for physical stigmata, overlook mental abnormalities having far greater bearing on the acts of the criminal and explaining more satisfactorily this deviation from social laws. The term "degenerate" seems commonly used as a general heading under which all criminals can safely be classified, without fear of error. While it may be true that many criminals are "degenerates" if compared to an average racial standard, it is equally true that many criminals are not degenerates if compared to the standard set by their own ancestry for several generations before their own. They are the logical product of their environment and training, the laws of cause and effect being only too plainly evident in a large proportion of cases. Few criminals, if we are to believe the daily press, are without certain physical signs which indicate the presence of the degenerative process. A summary of these is often made that the interested public may be informed. But how rarely is there any summary of mental signs. The very courts that have to pass upon the criminal seem as ignorant of his mental make up as do the body politic, which has no immediate chance to study him. To be sure in rare cases, some inquiry may be made by either police or court, the object of the enquirer being in most instances to ascertain the guilt of the accused in a legal sense, and not to establish his mental

responsibility for the act for which he stands accused. Men often classified as confirmed criminals should be classified as confirmed lunatics, because their crimes are the direct result of morbid minds, their derangement being unseen by the untrained, but plainly patent to the skilled observer. Chief among the trained investigators is Lombroso, the recognized head of the Italian School of Criminologists. He has made long studies upon the skulls of both criminals and non-criminals. As a result of his labors he states:

First: That the skulls of criminals present asymmetries in a larger proportion than do the skulls of citizens.

Second: That the average cranial dimensions of criminals fall appreciably below the moral standard set by an average of free men.

If then, we accept the modern teaching that the growth and formation of the skull are dependent upon the development of the cerebral cortex and that this cerebral mass is composed of numerous small divisions, each with a definite and localized function, it is not difficult to explain why the skulls of criminals present asymmetries and limited dimensions in a larger percentage than do those of normal men. Following the same line of argument we find a possible explanation for the criminal, in the over-development of certain portions of the brain, at the expense of others, accounting too for his sub-normal manifestation of mental power by the general under-size and under-development of the brain as a whole. Searching for the mental training that the minds of criminals receive, we find it far below the average known to general society. Fully ninety per cent of the English population are able to read and write. Among criminals only seventy-two per cent have this rudimentary training, showing conclusively that total ignorance is nearly three times as great among criminals as among the general population.

The Federal Bureau of Education from an examination of statistics has formulated these conclusions:

First: That one-sixth of all crime in this country is committed by persons wholly illiterate.

Second: That one-third of all crime is committed by persons practically illiterate.

Third: That the proportion of criminals among the illiterate is ten times as great as among those who have a common school education.

From these statements it can easily be seen that criminals when discovered as such, are without the mental training and consequent reasoning faculties of ordinary members of the social organization, to the rules of which they must conform. The lack of mental power first shows itself in criminals by their intense egoism and vanity, which is practically without limit and is at total variance with their true worth. Indeed many criminals ascribe their detection, not to any skill on the part of the authorities but to their own indifference and carelessness. They will concede to you, perhaps in a boasting manner, of their misdeeds and in the same breath tell you of the persecutions of the police, explaining that their arrest was made because of personal spite and not because of any desire to see the law upheld. They go on to say that outwitting the police would have been simple enough had a real effort to do so been made. They may credit the officers for much sagacity, but intimate that they possess it in a larger degree notwithstanding the fact that the officers brains have proven too much for their own. When an instinctive or trained criminal is given work and placed under a competent instructor, he straightway devises new methods for the work, in his mind far better than those in use. He tries to teach his instructor. He can rarely work to plans, because he finds imaginary defects in the plans as soon as he sees them. His explanations as to why he varies from methods of work and plans are numerous and intended to show his superiority over any other man who may have attempted the same work. His only admiration, aside from that of himself, is that for some one of his own class. For honest free workmen he has no respect and he unhesitatingly condemns their work as often as the opportunity presents itself, unless the artisan discussed be of a craft not represented in the prison, or the fellow convict representing it, should it be represented, be his personal enemy. He is ever in the right on all questions of judgment, and apologies and *acknowledgment of error are almost unknown among criminals*. So great is this egoism that if he composes music, it is better than that of Mozart. If he writes, the work of Shakespeare is obscured;



and on these points his belief is honest and sincere. Next to self-worship, comes the worship for his class. Be a criminal gifted in any way to distinguish him from his fellow prisoners, he is an object of attention by a whole convict population, the members of which laud him as often as possible.

In connection with this, is to be noticed a singular manifestation of the mental obliquity of the criminal. Despite laudation of one another, despite professed friendship and admiration, there is nearly always a deep seated sense of suspicion, rarely seen outside the criminal class. The average criminal is distrustful of his best friend and if detected in some breach of discipline invariably attributes his detection to some of his associates, rather than to the work of any official. Notwithstanding the adage of "honor among thieves" one criminal rarely sacrifices himself or his interests for another. If he occasionally does so it is never without ostentation and display calculated to attract attention to him and his act of sacrifice.

Closely allied to this morbid vanity is a lack of moral sensibility astounding to an individual normally constituted. To the habitual criminal, questioning about his offense is not in the least embarrassing and no examiner need feel the slightest delicacy on this ground. If he has stolen he will (after conviction) tell you of it without shame or fear, in fact his manner will be much like that of a business man relating the story of a mercantile transaction. He explains that his victim probably came by his property by means no more questionable than those of the thief and says further that his right to property is as great as that of his victim. He fails to distinguish between enterprises recognized by law and those recognized as contrary to it and he gets no sympathy because his mental faculties and training do not permit him to perceive this difference. The lay public is as ignorant today of the underlying mental traits of the criminal as it was a century ago. At that time the fact that a crime had been committed was enough to call for vengeance on the criminal, and the question of mental responsibility for the crime was not considered at all.

Now criminologists well know that a large proportion of criminals have the minds of children in the physical structures of adults. By this it is not intended to convey the idea their minds are as pure as those of children, but that so far as fore-

thought and stability are concerned their reasoning and mental balance can be compared in simplicity only to those of children. When the moral susceptibility is measured in figures it is found that less than twenty per cent are ordinarily impressionable, the sense of common shame being absent in practically eighty per cent. The sense of reason appears largely replaced by the cunning and instinctiveness seen in the animal; their will power seems never to have been established. In short there appears an evident constitutional deficiency, so that the simply endowed youthful defective, becomes a criminal under circumstances which would not have caused the downfall of one gifted with only ordinary self-control. The same lack of will power and persistence make the accomplishment of tasks impossible, since a criminal is quite incapable of steady, continuous application to labor, either mental or physical. Their minds too, are obtuse and slow of comprehension. They may grasp a single idea quickly enough, but when confronted with a problem that contains several propositions more or less interwoven and the one dependent upon the other, they utterly fail. Their weak, imitative nature is instanced by the frequent repetition of notable crimes, even though the second offense be committed thousands of miles from the scene of the first, and quite beyond the direct influence of the original perpetrator. In penal institutions outbreaks of violence and suicides rarely happen singly, though the occurrence of either puts an entire institution staff on its guard.

For many years the impression has prevailed, that extreme cruelty is quite common among criminals. This idea I believe to be an error. After a dozen years observation of the criminal insane, among which are included some of the most noted criminals of the present day, I have not found a half dozen cases where a cruel disposition was shown. In early history we learn of terrible crimes with cruelty almost beyond belief; we learn too of punishments no less cruel than the crimes. May it not be possible that the good influences of advancing civilization have softened alike both criminals and justice?

Your sympathy for the criminal is not sought, but your study of him is invited. When it is possible for a mentally deranged man to pass before the courts several times in a few years, without detection of his mental alienation, the time is

ripe for the legal profession to seek the aid of its medical brethren. It is to members of the professional class that both society and the criminal must look for bettered conditions and understanding. Let those who minister to other morbid mental conditions be not indifferent to the peculiar ones presented by the criminal

#### DISCUSSION OF PAPERS OF DR. ALLISON AND OTHERS.

DR. ROBERTSON: Since August, 1900, it has been the practice for the physicians at the New York State Reformatory at Elmira to examine the physical and mental condition of all inmates upon their reception. It has been found in many cases that inmates, or you may choose to call them prisoners, were suffering from mental disease; in other cases they were in such condition that it was deemed highly probable that mental disease would develop before they had been long in confinement. In 1901 we noticed three such cases of whom, upon admission, we were suspicious of their mental condition, and these three cases were during the fiscal year of 1901 transferred to the Matteawan State Hospital for the Criminal Insane. The examination of inmates which began in 1900 included not only the new arrivals, but an investigation was made of the mental condition of those who were then in the institution. This analysis resulted in the transfer of some seventy-eight cases to the Matteawan State Hospital and the Government Hospital at Washington. It is needless to say that this action caused some criticism, some attributing disciplinary measures then in force, as the cause, while others believed we were being imposed upon, and were committing malingerers. Of course we allowed time to determine whether the disciplinary measures then in force were a cause, and whether the inmates committed were really insane, and after a lapse of three years we are able to state that while no marked change has been made in our disciplinary measures, the number whom it has been found necessary to transfer to hospitals for the insane has decreased; and, secondly, of the seventy-eight cases transferred in 1900, not more than seven or eight have since that time been returned, as being fitted to again take up the routine institutional work.

It would seem that this result justifies the action then taken and should serve to call the attention of those interested in prisons to the necessity for recognizing and transferring those mentally affected.

As I study the mental condition of those admitted to this institution I become more and more convinced that there is a considerable number who are mentally affected and many others who are sufferers from nervous diseases.

It seems to me that the forms of insanity which Doctor Allison has brought out are not of the acutely maniacal; this appears to be a peculiarity of this class, the quiet and depressed cases outnumbering the excited and maniacal ones.

I have been impressed with the careful study which Doctor Lamb has made of his cases. The egotism of the criminal class is apparent; they exhibit a constant desire to pose as heroes before their fellows. A considerable number

of them have very little appreciation of moral laws and I have been particularly impressed with this while studying the histories of those who have been convicted of the crimes of rape and arson; and I found that many, if not actually insane, were certainly far below the average in intelligence—in fact, imbeciles.

I believe it is only by a careful study of the criminal class by you who are in a position to know human nature and to understand the human organism, that a satisfactory solution of questions regarding the criminal will be reached. And the more the criminal is studied by medical men the more rapid will be our progress toward a more rational form of treatment.

DR. JOHN S. TURNER: The papers which have been read this afternoon on the criminal class of cases have been very interesting. In our State (Texas) the criminal insane are incarcerated with the ordinary insane in the hospitals, and we have been for the past four years trying to get an institution devoted exclusively to the care of the criminal insane. We succeeded last winter in getting a bill through one branch of the legislature setting apart a ward in our Austin State Institution in which the criminal class should be cared for.

Some very interesting cases along medico-legal lines have occurred in our State, and I think there have been some miscarriages of justice on account of the fact that we have been unable to properly observe these people with criminal tendencies. I have in mind one case that I saw last August a year ago. I was called to one of the counties of our State to examine a young man who had been recognized as an insane person for some six months previous to the killing of two of his companions without motive. He was placed on trial immediately after committing the homicide, the first trial resulting in a hung jury—ten being favorable to conviction for murder in the first degree, giving him a life sentence. Two of the jurymen, however, hung the jury on the ground that they believed he was mentally unsound. A new jury was called and there was a retrial. The second jury was out nearly forty-eight hours, but finally agreed to a conviction of murder in the second degree, giving the defendant a sentence of fifty-five years in the penitentiary. The prosecuting attorney admitted that the man was insane at the time of the murder and had been so for at least six months before, and that the crime was committed without any motive except a delusion of persecution, yet as a matter of public policy the man was committed to the penitentiary. The prosecuting officer made this kind of an argument to the jury: "The man is insane, but he has murdered two of the most respected young men of the community; he will go to the asylum and recover, then he will return and murder you or some of your family." That argument had its effect. After the jury had rendered its verdict the judge asked me what I thought of it, and I told him I thought it was an outrage, after which he promptly entertained a charge of insanity which was made against the man. He had the jury discharged but did not permit them to leave the jury-box. Then I was placed on the witness stand and testified in the same way that I had in the trial for murder. The jury then, without leaving the box, found the man insane. He came to our hospital and in four months recovered and became a very fine fellow. As soon as he recovered he was taken from the hospital



and is now in the penitentiary serving his fifty-five-year sentence. This is an unusual case, in that the same jury convicted the defendant for murder and assessed his punishment at fifty-five years in the penitentiary and adjudged him insane and ordered him sent to the insane hospital all on the same day.

DR. DREW: I have been much interested in the papers read this afternoon and I find nothing in them to criticize. I endorse heartily all the papers about the insane criminals. In addition to what has been so well said it may be interesting to you to know the conditions of the criminal insane in Massachusetts. We have now about four hundred and fifty criminal insane, which includes the criminal insane and the insane offenders, according to Doctor Allison's distinction.

The law in Massachusetts gives the courts the power of sending an unconvinced man found to be insane to the asylum for insane criminals if his previous life has been criminal or bad, or to a hospital for the non-criminal insane if his previous life has not been vicious or criminal. If one is sent to our asylum who ought to be sent to a hospital for the non-criminal insane, the State Board of Insanity has authority to transfer him, and this they occasionally do. We find that a great many cases are admitted to the different penal institutions that have been insane for some time. Many of these cases have been guilty of petty offenses, such as an alienist would recognize at once as the absurd acts of an insane man. In regard to anomalies of the skull and face in the criminal classes, I think they do vary somewhat more frequently than the better class of society, but it is pretty hard to speak about a type which would be called insane. In some cases any one of us might be able to diagnose insanity at sight as we have heard it was done in years gone by, because the patient might be such a degenerate that there would not be much danger of going wide of the mark. An occasional sane man is sent to us having feigned delusions or dementia, but in the five years that I have been caring for this class of patients, we have had only two that were sent back to the penal institution that were not insane, and I think this shows how careful the prison officials are that none who are not insane shall be sent to the asylum. We do receive cases with certificates showing that the patients have been insane for one or two years. The tendency in our State is to keep the patients until their condition is chronic.

DR. DEWEY: I would like to express one thought bearing upon these papers relating to the class of the criminal insane. The feeling that I have very strongly about that subject is that it is necessary to enlighten first our own profession and then the people generally with regard to the need of proper provision for insane criminals. We, of this Association, understand pretty well those facts, and there can be no disagreement among us as to the doctrines laid down in the papers which we have heard read. But it seems to me that we ought all of us so far as we can to popularize among the profession first and then before the public, the necessity of taking proper care of these criminal insane. We should do it in the way of writing for popular reading, and by directing the attention of the medical profession to the evils at present encountered—for it is deplorable to note the inadequate treatment given as a rule both to those who are convicted and those who are excused from punishment on the plea of insanity. There is no

proper provision for them, and many are sent to the penitentiary simply because there is no criminal asylum. If there were such an institution everyone would agree that it would be the proper place to send them. Very few of the states of the Union have as yet made any separate provision for insane of the criminal class.

DR. A. B. RICHARDSON: I want to put on record a rather curious practice with reference to the insane in Indian Territory. The Government Hospital for the Insane is required to take all the criminal insane committed to it by the Department of Justice, including any who are arrested for offenses against United States laws as well as those who become insane while serving sentences for offenses against the same. In Indian Territory they have no institution for the insane and no way of taking care of the insane. The practice there is to pay no attention to the insane until they become troublesome or dangerous when they are always arrested for assault and then sent to our hospital. So we get quite a number from Indian Territory who were arrested for simple assault when the assault consisted in most cases of such an infraction as insane persons often commit. They used, I believe, to send them to jail as vagrants. It seems to me that this is carrying the question of separate treatment for criminal insane to an extreme.

## THE FOURTEENTH INTERNATIONAL MEDICAL CONGRESS AT MADRID.

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*By A. E. Macdonald, M. D., of New York,  
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The Fourteenth International Medical Congress was held in Madrid, Spain, commencing on April 23 and terminating on April 30, 1903. It was under the presidency of Professor Julián Calleja y Sánchez, Doyen of the Faculty of Medicine of the Royal College of Madrid. As stated by the Secretary-General, Doctor Angel Fernández-Caro, at the opening session, it was composed of 7000 registered members, a little more than one-half of that total being Spaniards and a little less than one-half foreigners. In this case, as in other following instances where figures are cited, approximate, round numbers are used. The numbers in actual attendance were not officially stated, so far as I am aware, up to the closing of its sessions, but did not probably vary greatly from those given above, members who registered in advance but failed to attend being balanced by those who attended without previous registration. The grand total of the foreign attendants was made up from the different countries represented, about as follows:

France headed the list and Germany closely followed, the former with a little over, and the latter with a little under, 800 members. No other country at all nearly approached this representation, the next in their order being Russia with 300 and Austria with 250, followed by England and Italy each with 240. The United States of America, with 200, filled the seventh place in numerical order, and from that to the eighth place, filled by the Argentine Republic, there was again a sudden drop in representation to 45. Hayti had the distinction of closing the list with a solitary sponsor, whilst, intermediately, among others

came Portugal with 33, Brazil and Mexico with 25 each, and Japan with 4.

The administration offices of the Congress were located in the *Palacio Bibliotecas y Museos Nacionales*—the Biblioteca, for short. This is a fine edifice, admirably designed for its legitimate purposes, but even under the best of circumstances, hardly suited for the purposes of such a gathering. And the best of circumstances did not prevail, for the time of the meeting of the Congress was chosen also for the carrying on of extensive building operations which temporarily closed the main entrance and covered the main front of the building with scaffolding and hoardings. Entrance had to be effected, therefore, by the comparatively unimpressive rear of the building and the quarters of the Congress reached, after entrance, by a circuitous route through some of the galleries of the museum and over a temporary wooden bridge.

Whether the number of attendants upon the Congress was a surprise to the administration, which scarcely seems possible in view of prior notifications and correspondence, or whether the necessities of the case were quite underestimated, which seems more probable, the preparations proved utterly inadequate. The offices, temporarily petitioned off by flimsy screens, were small and insufficiently manned, and some of the former were soon swept away by the mass of Congressistes—as members were generally called—who had to fight their way to the small pigeon-holes and then fight their way back again, to the great detriment of temper and clothing. Several thousand struggling Congressistes were supposed to reach one of these bureaus to obtain an identifying card and then to reach another and exchange it for other credentials and invitations, and all this in the few morning hours of the opening day, and preceding the formal session of the afternoon. It was simply a matter of physical impossibility, and many failed to get their documents then, or, for that matter, thereafter. Policemen, or civil guards rather, stood by, but made no effort to restrain or direct, and one longed in vain for the American instinct to “form a line,” which would have much simplified matters even under the adverse circumstances. The experiences of the first day were repeated throughout the week with but little improvement; for example, one small office, with frequently but one clerk, though



sometimes two, was provided for the distribution of the thousands of letters arriving. These letters were supposed to be arranged in packages in accordance with the initial letter of the name of the addressee, though it was quite common to find letters in the wrong packages, if they were found at all. As often as a name shouted by an enquirer reached a clerk, the package was gone through deliberately, whilst all others waited, perhaps to be gone through again, a few minutes later, if another applicant with the same initial succeeded in making his wants heard.

The same failure to grasp the necessities of the situation was apparent in the publications of the Congress. A "Diario" was issued each morning purporting to give the official programme and information for the day, but it was often incorrect or incomplete, and, not infrequently, actually misleading.

A "Supplemento" to this publication was intended to give the names and Madrid addresses of attendants, and would have served a most useful purpose in enabling friends to find each other had it been issued promptly. But it did not reach members until the last day but one of the session, and was then found to be very inaccurate, hundreds of names being omitted and others being misspelled out of all recognition. This, however, was not confined to the Supplemento, but was shared in by all the official literature. The head of the United States delegation, Surgeon-General O'Reilly, became *Dr. Reyilly*; his compeer, Major McCulloch of the British War Office, became *Dr. M. Culloc*; my fellow-delegate from the New York Academy of Medicine, Dr. Andrew H. Smith, was missed by the Supplemento, but Mrs. Smith appeared as "*de la famille de Congressiste Smitts*;" Saxer became *Sarer*, MacMullen *MacMulled*, and so on to the end of the chapter. Four friends of my own were kind enough to entrust their names to me for registration with my own when they saw the surging crowds and recognized the dangers of approach to the Registry. After carrying out the forlorn hope successfully, but one of the five names reached the sacred columns of the Supplemento, and its customary spelling was so sacrificed to individual Spanish taste, that it was only recognized after a painstaking autopsy. It may be proper to add, for the benefit of readers who have enjoyed the privilege of my correspondence, that the names were *not* in my handwriting.

The work of the Congress was divided among sixteen sections, to which members were assigned in accordance with their expressed preference. Of these, the sixth section, designated in the Spanish of the official programme "Neuropatías, enfermedades mentales y antropología criminal," claimed my own membership and attendance. It was under the presidency of Professor José María Ezquerdo y Zaragoza, with Professor Abdón Sánchez Herrero as its secretary.

The total number of papers contained in the advance programmes of the various sections was 1681, but many of them were read by title only, or not at all. In the Section of Neuropatías the list contained ten reports and sixty-six papers or communications, and in this section, as in others, the number of papers did not represent equally the number of contributors, several gentlemen offering more than one contribution, and some as many as four or five. But four papers were listed from English-speaking contributors, one by Dr. Fletcher Beach of England, upon "The Care and Treatment of Epileptics in England," one by Doctor Sutherland of Scotland, upon "The Geographical Distribution of Insanity," and two by Drs. Charles H. Hughes of St. Louis, and Herman Hoppe of Cincinnati, upon "New Views of the Virile Reflex," and "The Cortical Origin of Disturbances of Sensation," respectively. These were the titles as selected by the authors of the papers; as edited they were transformed into "*Few viceros of the virile reflex*," and "*Hysterical Lesions produced by thrombotic apoplexy*."

The meetings of the various sections were held in the galleries of the Biblioteca, and had the advantage, therefore, of being all under the same roof as the offices of administration, etc., so that no time was lost in transit from one to the other. In this respect they were much better provided for than were the general meetings, which, being held in the amphitheatre of the Central University, were remote and inconvenient of access, and which had the added disadvantage of being held irregularly, insufficiently announced, and subject to vexatious delays and postponements. The advantage of convenience of location of the section meeting places was, however, more than offset by the structural arrangement of the galleries, there being no way of passing from one to another, where they did not adjoin, except by traversing any galleries that might intervene. Apart from

the continuous procession of Congressistes in legitimate transit to or from their sections, there was constant passing, also, of throngs of visitors whose interest lay in the inspection of the paintings, statuary and other contents of the museum, and who furnished for the conscientious Congressiste a source of distraction only less than that of the art objects themselves. I am not sure that the latter distraction was unwelcome to some of the less conscientious Congressistes, who found in it a relief from continued attention to discourses in languages which they did not understand. I have even heard an expression of regret from the irreverent that the meetings were not held in the other National galleries in the Prado, with their treasures of Velasquez and Murillo and the older masters. For it must be confessed that the Modern School as represented on the walls of the Biblioteca, while showing some noble paintings, is disappointing. Battle, murder, and sudden death seem to be the favorite subjects of the artists, and any one of the galleries, as well as the particular one to which it was assigned, would have furnished an appropriate stage-setting for the Section of Military Surgery.

In this matter of disturbance by visitors, the sixth section fared better than most of the others, in that but one other section-room had to be traversed in order to reach it, and that there was nothing beyond to lead to its being made a general thoroughfare. It was also favored in the character of its contents, historical records in glass cases being less attractive to the sight-seer or distracting to the Congressiste than pictures and statuary, while the cases themselves, running down the centre of the room as well as along the sides, served to partition of the meeting place. It may be confessed now that the contents of the cases served another useful, if not entirely commendable, purpose. By judicious selection of his seat and judicious changing of it from time to time, the Congressiste Étranger could preserve credit for polite attention to readings and discussions which he could not understand, while improving his mind by the partial perusal of the archives, and incidentally improving his opinion of his own and contemporary handwriting by comparison with that, for example, of Christopher Columbus, Cervantes, and Ferdinand and Isabella.

One of the regulations of the Congress had to do with the language in which papers might be presented and discussed—

Spanish, German, French and English being those prescribed. Spanish was, naturally, most in evidence, though French was almost as prominent. German found an exemplar in the speeches of gratulation of the opening session from an unexpected quarter—Japan—Dr. Honda Tadao making his little speech in what he evidently considered the language of the Vaterland. The Germans present, instead of being flattered by the selection, protested loudly that his belief was unfounded and even had the bad taste to laugh at him. Others of the audience hissed those who laughed, and were supposed by others in turn to be hissing the speaker, and so the comedy of errors went on.

In the sections it was not uncommon to hear all the four official languages used in the reading and discussion of a single paper, and more than one essayist was able in closing a discussion to answer his critics in each of the several languages used by them.

An instance of this confusion of tongues, of which I was myself, in a sense, a victim, came with the reading of the paper of Dr. Sutherland, Deputy Commissioner in Lunacy for Scotland, dealing with the comparative frequency of insanity as between urban and suburban localities. Dr. Sutherland had asked me in advance to open the discussion, and for that purpose had given me verbally a brief abstract of its points. But he had not told me that out of compliment to the place of its presentation, and to the language of the majority of his auditors, he had had it done into Spanish. So I was put in the trying position for a conscientious Congressiste of sitting through the reading with an assumed air of understanding every word of it, and of then getting up to make, in English, such comments as had been suggested to me by the reading to which I had just listened, as I told them, with such abundant interest and instruction. It was trying at the time, but upon maturer analysis of the entire situation, I am led to wonder if our common audience did not perhaps understand as little of Dr. Sutherland's Spanish as they undoubtedly did of my English.

The social side of the Congressional week was, by no means, the least in importance. Led by the Royal family, and followed by the Municipality, societies, medical and others, and by individuals, an abounding hospitality was shown not only to regular members of the Congress, but to the members of



their families and to others accompanying them. The entertainments provided, much surpassed in scope and detail those of the preceding Congress in Paris, in 1900, and were surpassed, in turn, perhaps by but one other Congress—that of Moscow, in 1897. At the latter, however, the provisions for the care and entertainment of attendants, who were made literally the Nation's guests, were so lavish that it may well be doubted if they will again be paralleled—unless, by possibility, when Russia is in time revisited.

In the order of social events, precedence must, of course, be given to the two occasions, upon the afternoons of the second and seventh days of the Congress, respectively, when Royalty was the entertainer, the first function taking the form of a reception by the King, at the Royal Palace, and the second a garden party given in the name of the Queen Mother, in the gardens of the Campo del Moro. To the reception by the King only gentlemen in attendance at the Congress were invited, and from them, despite the early hour set, evening dress was, in accordance with continental custom, exacted. The long series of magnificent salons and galleries extending, upon the main floor of the Palace, throughout the three sides of the quadrangle which the latter occupies, were filled by the delegates, grouped in the alphabetical order of the countries from which they came accredited. Those from our own country—Estados Unidos being the official designation of the latter—found themselves between the representatives of Denmark on the one hand and those of France on the other, with Cuba preceding Denmark and Great Britain following France.

Through the long series of apartments, and down the long lines of the Congressistes, the young King passed, accompanied by his staff and ministers, pausing as each country was reached for the formal presentation of the official delegates, generally by that country's minister or other official representative, and in the case of the United States by Minister Hardy, and then passing on with occasional pauses for the informal exchange of a few words with individuals. Following the King's party, after an interval, came that of the Queen Mother, her daughter, the Infanta Maria Theresa and her sister-in-law, the Infanta Isabel, with the ladies in waiting, all in the court mourning being worn for the grandmother of the King, making up its en-

semble. The Queen Mother entered into conversation with the heads of delegations and individuals more extensively even than the King, and in turn, in that respect, was exceeded by the Infanta Isabel, who paused so often, speaking interestedly and animatedly in apparently all the languages, that hers soon became a separate reviewing party. It had been questioned, the unpleasant episode of the opening day of the Congress being fresh in memory, whether any difference would be shown, even perhaps unconsciously, by the members of the Royal party, in their treatment of the United States and other delegations. Upon the part of the King, I should say positively that there was not; he was courteous, affable, winning in manner, and made every delegate his sympathizing well-wisher on the spot. With Queen Maria Christina there was perhaps a little stiffening in manner, a little trace of hauteur, not to be wondered at in a high-spirited woman greeting the representatives of a country recently at enmity with her own, and which she had to thank for failure to keep intact through her regency the kingly possessions of her son. What she *was* capable of was shown when before she reached our position she had to pass Cuba's representatives, and did so without slackening pace, with head in the air and eyes fixed. For a foreign enemy, conquering but generous withal, there might be frank courtesy, but for rebellious colonists, never!

In withdrawing from the reception rooms and traversing the galleries leading to the hall of exit, opportunity was given for viewing the unique collection of tapestries which has made the Royal Palace justly famous. The unbroken series covering the vast area of the gallery walls gave æsthetic pleasure to all observers and to those from the Estados Unidos an added satisfaction as negating the story published in the saffron journals just before we sailed that they had been depleted through the perfidious machinations of Mr. J. Pierpont Morgan. In connection with this reference to negative testimony that this gentleman is not so black as he is painted, it may not be out of place to record that when in Seville, at the cathedral, we were shown the painting of Saint Anthony of Padua and gravely assured by the veracious guide that to Mr. Morgan's munificence was due the provision of the funds necessary to make its restitution possible after it had been stolen and carried to the United

States. In this the veracious guide, either ignorantly and therefore innocently, or thinking that a good story should not be lost for want of a little manipulation, mixed up two stories of robbery and restitution, for the Anthony was stolen as far back as the seventies, and restored—not in the artistic sense—by a New York picture-dealer to whom it was offered for sale, while the incident with which Mr. Morgan's name was connected was a much more recent one. It will be remembered that the painting of the latter story was reported to have been cut from its frame and to have disappeared. After many months, through the detective ability of a distinguished gambler dwelling in the art-centre of this country—New York—its hiding-place was revealed in the crime-centre—Chicago—and the above recorded episode in international comity followed.

The second in importance of the social functions was "El Garden Party," as it was called, with the Spanish annexation of foreign names for social pleasures which borrowing from the English herein, borrowed from the French in its "Esplendido Buffet." Changing the setting from the richly decorated interior of the Palais Royal to the gardens adjoining it, and adding to the members of the Congress the ladies accompanying them, the second fete followed otherwise very much upon the lines of the first. The King with his staff and cabinet, the Queen with her ladies in waiting, and the Infanta Isabel with her coterie again, in turn, passed along the lines of guests, drawn up this time informally and without reference to their nationalities; and stopped here and again for a momentary exchange of civilities. Military bands posted at intervals throughout the grounds furnished music for promenading, and as the Royal party made the circuit of the gardens in carriages, in arriving and departing, took up in turn the strains of the Royal march.

For the rest, the more pretentious official entertainments of the week consisted of an afternoon reception to Congressists and their families by the Municipality, in the Gardens of El Buen Retiro in the public park of Madrid, this taking the place of a banquet to the former which had been planned and announced but afterwards abandoned, when it was found how greatly the attendance at the Congress exceeded expectation.

Of indoor entertainments, the opera led the list, upon one night such of the Congressistes as were fortunate enough to secure invitations, attending as guests of the local committee. That this is but a small world after all, was illustrated by the fact that during the week of our visit to Madrid one of the companies appearing presented a prima donna in the person of a New York girl, Miss Strakosch, while the baton was in the hands of Emil Paur, who may be considered a New Yorker by adoption.

With the possible exception of the Royal receptions, probably the most largely attended public function of the Congressional week was the bull-fight of Sunday afternoon. The Plaza de Toros, or bull-ring, has a seating capacity of 14,000 persons, and to all appearance every seat was occupied. The usual programme was carried out in the usual way, six bulls were slaughtered and twice as many horses, without any chance for themselves, and the hope that is apt to arise after the first half-hour in the bosom of the average alien spectator—that something unpleasant may happen to some of the men—was doomed to go unfulfilled.

It was announced in advance, though unofficially and, as it turned out, incorrectly, that this entertainment was to be provided as one of those upon the regular programme. Not only was this not the case—and most of the Congressistes preferred to have it so—but so far from being invited to attend, no measures were even taken to see that those who wished to purchase tickets of admission might do so at the regular rates. As a consequence the tickets were absorbed long in advance, and the stranger had to pay four or five prices, or to reach a late conclusion that he didn't think it proper for him to countenance such an exhibition. Similar conditions attended some of the other entertainments, even in one instance, one of those supposed to be a complimentary tribute from the local to the foreign members of the Congress.

Some well-meaning foreign delegates were much worked up over the horrors of the bull-fight and the impropriety of attendance, and inferential countenance, upon the part of visitors from other countries. One prominent official delegate, indeed, took steps toward public condemnation of the function, and of bull-fights in general, by the Congressistes in mass-meeting



assembled. And he was not from the United States either, the only country which has the inherent and heaven-born right of volunteer regulation of the internal affairs of other peoples. But the demonstration fell through, perhaps upon realization that criticism of one's host's individual manners and customs in a matter which he had not obtruded upon one, would not be in the best of taste. A Spaniard in America need not go to a college football match or a negro roasting unless he wishes to, and would probably, if he should be in any sense the nation's guest, forbear from wounding national sensibilities by unfeeling reference to them. After all, Spain may be left to work out the problem of perpetuation or abolition of an ancient national pastime, and this with, as it is understood, the King, and certainly the Queen Mother, strong advocates of the latter course. Meantime it might be well for some of her critics to reverently remember that while Spain permits the bull-fight, she stopped the automobile race.

Any account of the Fourteenth International Congress would be only partial which failed to refer to the imperfections and unpleasantnesses which undeniably attended it, though not, by any means, in the degree that was represented in some quarters, or believed at the time by some self-supposed victims. This unpleasant subject may as well be disposed of here, and more agreeable matters turned to. It may be at once admitted that errors in management were perceptible beyond those attending former Congresses, and beyond those necessarily inseparable from so large an undertaking as the assembly and care of so vast a body. To some of these I refer in other connections. Indications of what was to come were given, before they left their homes, to many intending members, whose correspondence remained unanswered or remittances unacknowledged. Credentials which were necessary in order to procure promised reductions of fare upon railroad and other routes, failed to reach members in time, or when received were in such form as to lead the common carriers concerned to repudiate them; and many Congressistes had in the end to pay full fares and to forego conveniences of travel which they had supposed to be assured. Complaints of this nature were common from the attendants from all countries. My own experience in that regard was shared by over twenty of my fellow-passengers on the same

steamer, with the same errand, and it was only after vigorous telegraphing from Gibraltar by the agency that had most of us in charge, that emergency arrangements were made by which we were afforded the transportation facilities and reductions promised and contracted for. The credentials which failed to reach us before sailing, and which we were later told were awaiting us in Madrid, did not materialize even there, and my own have not materialized yet, but I solved the problem in part by paying my subscriptions a second time. Many others had a similar experience in that particular regard, and others again, in other directions also; those who had subscribed in advance for the Album of the Congress, for example, being informed, though without any offer to return their subscriptions, that the matter had been placed in the hands of a German firm which had failed to keep its engagements. But the worst sufferers, no doubt, were those who depended upon the official Bureau des Logements to provide them with accommodations during their sojourn in Madrid. The plan laid out contemplated the purchase by the confiding Congressiste of certain coupons which were in turn to be accepted by the providers of bed and board, any surplus coupons to be redeemed by the Bureau. As a matter of fact only the first part of the plan appeared to be carried out, the Bureau took the money, but the landladies would not, as a rule, take the coupons, and the Bureau either would not or could not redeem them. It turned out that the Bureau was official only in name and, according to the story, the individuals to whom its privileges were farmed out stayed long enough to make the collections and then levanted. As a consequence many of the patrons of the Bureau found themselves in a most embarrassing position, as, for that matter, did those of the lodging-house keepers who had accepted the coupons, and on the last days of the Congress the Bureau was assailed by both classes unavailingly, for payment was stopped and the doors unopened. Baggage was seized, and, in some instances, personal arrest was even undergone. Those who were fortunate enough to have surplus funds at command were able to effect the release of their bodies and their belongings by paying a second time, with the not very confident hope of ultimate refunding, but those who had calculated their expenses more closely found great difficulty in meeting the imposition.

From such undesirable happenings I was personally fortunate to escape, in company with others composing a party arranged for by Dr. Ramon Guiteras, who originally headed the delegation from the New York Academy of Medicine, but who, much to our regret, was at the last moment prevented from accompanying us. Dr. Guiteras wisely placed the conduct of this party in the hands of the Cook's Agency, whose satisfactory preliminary arrangements were so efficiently carried out by their representative, Mr. F. Piromali, who conducted the party from Gibraltar to Madrid and return, that personal trouble and annoyance were reduced to a minimum, and general results were, with due allowances for all the difficulties of the situation, more than satisfactory.

Under the arrangements made, the members of the party were taken from, and returned to, New York, for a certain outlay, depending upon the time occupied and the variation of routes permitted, all transportation, hotel accommodation, and other legitimate expenses being included. The party sailed, to the number of some thirty-six, upon the steamship "Prinzessin Irene" of the North German Lloyd service, on April 11, and six survivors, including the writer, landed from the same steamship at New York on May 13, having had in the interim nineteen pleasant days at sea and fourteen busy, but enjoyable, days ashore. Their more fortunate comrades at the outset who could afford longer absences from their hospitals or their offices, were left to linger in Spain or to pass on to France or Italy and to find their way home in detachments.

The most serious unpleasantness, at least so far as members of the Congress from our own country were concerned, arose from the untoward happening of the first day when, at the inaugural session, the United States failed to respond with reciprocal greetings upon the occasion. The Teatro Real or Grand Opera House was the scene of the gathering, and was crowded to the roof by members of the Congress and their families and by the representatives of the Spanish court and people. The King, as especial patron of the Congress, looked on from the Royal box with the members of his family, and the stage was filled with the accredited representatives of the different countries taking part in the conference, all but the United States. Addresses, more or less brief, but all cordial in the expression

of good-will to the country in which they met, couched in the several languages officially recognized, had been received and applauded, from Germany, Austria, Argentina, Belgium, Brazil, Denmark and others, even Cuba, coming in alphabetical order, but the eleventh country, the Estados Unidos, found no sponsor, and after a second call and a painful pause, the roll-call went on to the end of the list. Someone had blundered, just who, will perhaps never be settled, but that it was a blunder, and not an intentional slight in either direction may now, in cooler blood, be accepted as certain. Of course the incident was promptly assigned a definite relation to the late unpleasantness between the two countries, and our own people, or the majority of them, went to bed with the firm belief that the eagle's tail-feathers had been feloniously trifled with. Next day it was found that the Spanish lion had worked up insomnia over the deliberate insult from the Americanos, and gradually the temperature subsided and bloodshed was averted.

Speaking more seriously, there can be no doubt that the unfortunate episode referred to, put, for a time, an added tension upon a situation naturally somewhat strained. Without going into the general question, it may be proper to give your readers my more personal experiences of the visit to Spain, and this must be my excuse for obtruding myself so much upon the narrative. I must say then, that in everything that bore any possible relation to the state of feeling between the two peoples, the impression given me was of a strong wish for amicable and cordial agreement. In the section to which I was attached the honor was done me, as the delegate of the American Medico-Psychological Association, of selection as one of the Honorary Presidents, and in the public functions and private courtesies, it appeared to me that special pains were taken to emphasize the expression of good-will and good-fellowship. In this phase of the matter my experiences were unboundedly satisfactory from beginning to end, from "Bienvenida" to "Despedida." The pleasure in the first-mentioned honor was, it is only honest to admit, somewhat marred by the fact that in the official announcement I was assigned to Inglaterra while, by way of compensation, Hughlings-Jackson was presented to the Estados Unidos, and our friend Fletcher Beach, of London, was transferred to Scotland, under the guise of "Beach-Fletcher, Ecoss'e."



At the closing session of our particular section, its President called me, with two other foreigners, in turn, to the chair, and then in the course of an impassioned valedictory strained us, in turn, to his bosom.

To a man who had theretofore lived a modest and retiring life, to find himself suddenly clasped in the embrace of a stalwart foreigner who kisses him upon both cheeks and pours into his ears a volley of words which he cannot understand, but which are plainly of an endearing nature, is unmistakably embarrassing. But it is the custom of the country and no good delegate should complain of the perils of his delegation. At the general meeting in closing the Congress, the retiring Spanish President and the Portuguese President-elect fell upon each other in an osculatory duet that was beautiful to behold.

With meetings, either general or sectional, set for nine o'clock in the morning (an early hour in view of the late hours of retiring common in Madrid) and expected to re-assemble, in case of adjournment with unfinished business, in the afternoon, with entertainments of one and another kind almost every afternoon and evening, and with two official excursions—to Toledo and to the Escorial—claiming, if made, two full days of the eight, the Congressiste had no light task to meet, even with liberal cutting of many of the functions. And little time could be found, even at unwelcome sacrifice, for the visits to hospitals and other institutions, and for friendly interchange of individual converse, which, after all, perhaps forms as important a feature of such congresses as the more formal and official numbers upon the programme. My own visits were limited to one hospital for the insane, and to the Hospital for Epileptics, near Madrid, and, upon my journey to the coast, to the Hospital Real de Dementes or Maison des fous, at Granada.

The invitation to visit the Hospital for Epileptics, or to give it its proper title, Instituto-Asilo de San José para Epilepticos, was extended to three hundred members by the President of the Congress, who is, also, by nomination of its founders, the Director of the Hospital. Start was made from the Plaza Mayor, where in the cheerful days of the Inquisition so many souls were sent to heaven through the fiery deliverance of the auto da fé. This particular Plaza is one of the most interesting localities in Madrid, having been for many decades the site

of Royal functions, from those of the *auto da fé* through the bull-fights and horse-races, to the canonization of saints. The mansions which face upon the square, and which date back, many of them, to the fifteenth century, are constructed with a view to making them convenient points of observation of the various ceremonies. Arcades and balconies said to be capable of accommodating 50,000 persons front upon the square, so that delicate women and tender children needed only to step from their chambers to share the pleasures and educational advantages of the bull-fight and the bonfire.

From the Plaza Mayor, with its evil memories, to the well-equipped hospital at the other end of our journey, from the fifteenth century to the twentieth, progress could not well be better epitomized!

The hospital owes its endowment to the Marques of Vallejo and his lady, and is dedicated to the memory of their only son, who died of epilepsy. It is an example to private benefactors of other communities in that its donors were not satisfied to present a hospital building and leave its care and administration to the public, or to further private munificence, but provided for its maintenance for all time. The gift was to a Nursing Brotherhood—that of San Juan de Dios—the Father Superior of that order having charge of the administration and the monks thereof filling the posts of nurses and attendants generally. The capacity of the hospital is one hundred beds, and admission is restricted to male epileptics who are not, in addition, either insane, idiotic or imbecile, and who are also indigent.

The buildings are of modern construction, brick being the material used, and take the form of one- and two-story pavilions. Notwithstanding the limited number of patients cared for, full provision is made for treatment in the way of electric and hydropathic apparatus, and in a most complete operating theatre, while a series of well-equipped schools and shops provide for mental and manual instruction. The hospital is of but recent construction, is indeed scarcely completed now, but the barrenness of the high, level plain on which it stands is already succumbing to irrigation and to the labor of its inmates.

The Hospital for the Insane, "*Manicomio de Esquerdo*," to which I have referred as one of the few institutions which I

found time to visit, is situated at a distance of several miles from Madrid in the suburb Carabanchel, in proximity to the St. José Hospital, but in the longer period of its existence—it was established in 1877—more opportunity has been given for redemption and cultivation of the arid plain, and well-shaded and attractive grounds surround it as a consequence. Dr. José Maria Ezquerdo y Zaragoza, the President of the Section of Neuropathias, is also the Director and Proprietor of the hospital, and took the occasion of the visit of the members of his section, and after the inspection of the grounds and buildings, to invite them to a most sumptuous banquet. This was given in the evening, in the large dining-room of the establishment, which was decorated with flowers and the flags of different nations, the centre-piece being a large crimson shield bearing the legend “El Manicomio de Ezquerdo á los Mentalistas y Neurólogos extrangeros y Nacionales.” Some two hundred guests attended, and the novelty was introduced of having the several tables presided over by women physicians who were delegates to the Congress, and members of its sixth section. At the head of the principal table was Doctor Madame Susanne Marcoma of St. Petersburg, while the tables were also graced by the presence, among others, of Mesdames Raissa de Netchaewa and Dominga Bosch de Pacheco, of Buenos Ayres.

The honor was shown me of selecting me as the first mere man to sit at the right of the chair, and all through the varied courses of a most excellent repast I was embarrassed by wonderment whether it was customary in Spain to conclude festivities as well as scientific assemblages with such little passages between the President and the surrounding participants as I have before referred to. I found that it is *not*.

Following the banquet, when representatives of the different countries were called upon to toast and be toasted, and it fell to my lot early in the series to stand sponsor for the Estados Unidos, the naming of that country left nothing to be desired in the way of spontaneous and hearty greeting.

The hospital contained at the time of our visit a complement of one hundred and eighty patients, divided apparently among several classes of paying patients, having accommodations of varying extent and furnishings. Some of the patients were also, evidently, of the dependent classes. A branch of this

hospital is maintained at Villajoyosa, in the Province of Alicante, upon the seacoast, to which patients are sent for whom sea-bathing and sea air are considered desirable.

A feature of the banquet, already referred to, was the appearance upon the handsome menu of several articles of home production, the especially fine oranges coming from the country branch, as also the cheese and honey, and a very palatable wine from the vineyards of the Manicomio. Many of the hospitals and benevolent institutions of Spain—most of them under the direction of religious brotherhoods and sisterhoods—make a specialty of the preparation of articles of food and other products which are not alone used by their charges but sold for their benefit. They reminded me of our visit, at the time of the Montreal meeting of the Association, to the Longue Pointe Asylum, and the inspection and sampling of the dainties prepared under the supervision of the nuns in charge there. I was led to wonder how long it would be in the course of progress before, as in our own case, such practice should offend the delicate sensibilities of the Spanish walking-delegate to come, and before I left the country I saw by a Madrid newspaper that both the walking-delegate and the protest had already come.

The Hospital for the Insane at Granada is remarkable chiefly for the antiquity of its creation and the interest of some of its interior decorations, and finds a more appropriate place of mention in Baedeker than in the published transactions of your Association or the AMERICAN JOURNAL OF INSANITY. It was commenced during the reign of Ferdinand and Isabella and completed in 1536, in the reign of Charles the Fifth. A fine ceiling in the entrance hall, and other notable characteristics, attract the tourist as he leaves the adjoining bull-ring, and he in turn attracts the unfortunate *dementes*, who surround him with clamorous demands for cigarettes or the wherewithal to purchase them. The inmates of the department for the insane are not in large number, and are not, to all appearance, very scrupulously separated, either in location or treatment, from other dwellers in the establishment, among whom are many young children, foundlings, as I understood.

Throughout Spain, so far as I could see or learn, very extensive provision for the segregation and active treatment of the



insane is not made. Dr. Ezquerdo's hospital is well arranged and equipped with modern means for scientific treatment, electrical, hydropathic and the rest, but its population was under two hundred, and Madrid is a city of five hundred thousand inhabitants. At Seville, one of the largest of Spanish cities, upon inquiring for the hospital for insane, I was told that there was none, properly speaking, and that the few patients suffering from mental disorder were housed with the old men and women in what would correspond to our almshouse. But if provision for the insane is not extensive, the same may be said of insanity itself. The disease does not, to all appearance, prevail, or at least, demand recognition, at all as extensively as in the average of European countries, and from what I could see of actual hospital inmates, it is apt to take, when it does appear, a low and undemonstrative type. The insanity which, with us, would demand the sequestration of the patient, as filling the test-requirement of rendering him "dangerous to himself or others," is not the prevailing type in Spain.

At one of the hospitals visited, my attention was drawn to a novel means of ward decoration and of entertainment for patients by the sight of a burly *Padré*, apparently the hospital chaplain, who was chirruping to the occupant of a small wicker cage placed upon a bracket upon the wall. Upon closer inspection this occupant was found to be a cricket. Birds, and especially song-birds, are almost unknown in Spain, the destruction of the forests, which has left the country, for the most part, a succession of arid plains, having carried with it, also the extinction of the feathered tribes. To this rule there are some notable exceptions, as in the case of the park and gardens of the Generalife at Granada and the Alhambra, where the trees, which owe their planting to the Duke of Wellington, at the time of the British occupation, give shelter to many nightingales and other songsters.

But in the main, and especially in the form of domesticated song-birds, there is the dearth of which I have spoken, and the cricket, so far as may be, seems to be the recognized substitute. They are regular articles of sale at the hands of the street vendors, who transfer them from their general stock to smaller cages as a customer and his centimos present themselves.

I mention this matter with some trepidation lest it should attract the attention of the lunacy authorities of one of the States which shall be nameless. I can imagine, if such untoward result should occur, some hapless superintendent finding his revised and returned estimate to read as follows:

“AMUSEMENTS—One dozen canaries.

Disallowed. Re-estimate for one dozen crickets.

Correspond with Manhattan State Hospital East.”

The question of the choice of location for the meeting-place of the Fifteenth Congress, three years hence, was, of course, canvassed with interest both before the opening of the present one and during its continuance. Many among the attendants from this country were desirous that opportunity might be given to show what the United States could do in the way of perfected management, and incidentally to redeem the not entirely satisfactory record of the former Congress in Washington, in 1887. No formal consultation was held, however, and no information vouchsafed, but it was learned afterwards that not only was no invitation given from this country, but that some at least of those who found occasion to speak, earnestly opposed any action looking to such a selection upon the part of others. Failing the United States, Canada found great favor among those whose views I was most in the way of hearing, and who had in mind the magnificent receptions accorded last year to the American Medico-Psychological Association, and in 1897 to the British Medical Association, in Montreal. Of European meeting places, Vienna and Budapest appeared to have most advocates, while Japan, as in Paris in 1900 and in Moscow in 1897, was understood to be a willing host, not without partisans. Inaccessibility—comparative, and lessening from year to year—postponed again, however, the visit to the land of the chrysanthemum and the cherry blossom, which will no doubt some time come, and that Europe would carry the day at least once more was apparent early in the week of the conference. The actual decision was not as a matter of fact, reached until the last moment, or indeed until after the proper last moment, a mysterious adjournment being taken at the farewell session just as the formal announcement of the time and place of next meeting was in order, from which the officials returned with the unexpected report that Lisbon had carried the day. Ex-

planation followed astonishment, to the effect that none of the more favored countries had made good by the official invitation that was deemed essential, the efforts of individuals, and that the latter had failed to obtain by telegraphing to their capitals, the endorsement which the delay and the adjournment were intended to afford them opportunity for. It was, therefore, Hobson's choice, and full credit should be given to Portugal for courtesy and hospitality. That the choice was a disappointing one was nevertheless evident from the outset. With impressions derived from one capital difficult of access and deficient in facilities fresh upon them, the Congressistes in general could not look forward with enthusiasm to a meeting in another capital still less favored in size and accessibility and facilities. And, apart from these more personal considerations of comfort and convenience, there was undoubtedly the feeling that with world-wide purposes in its organization and conduct, the meeting-places should not be selected in close succession with virtually the same surroundings, with the same prevailing language, and to reach which remote participants must repeat a tedious and expensive journey, and sacrifice, twice over, an inconveniently protracted time.

Two questions have so frequently been asked me since my return, that I think perhaps some of those who read what part of this writing may escape the editorial scissors may have it in mind to ask them also. One of them has been as to the personality of the young King, and the other as to the present feeling of the Spaniards toward the United States. The first question is very easy of answer; the second is more difficult.

Alfonso XII will be a distinctly pleasing disappointment to those who have been prone to accept too credulously the descriptions of the yellow journals of our own country. He is neither an imbecile nor a degenerate, as they in turn depicted him. On the contrary, he impresses one upon near inspection—and he was very much in evidence during the week of the Congress, at the opening session, at the two Royal receptions, and in casual meetings in the streets for he evidently goes among his people very freely—as a youth of good parts. While slight of frame, he has the set-up of the soldier, and is of courteous bearing and affable manner. His face is pleasing, with a somewhat pathetic look in it; and altogether, taking into consideration his

youth—he reached his seventeenth birthday shortly after the meeting of the Congress—the impression made, as generally told, was very favorable.

The question as to the present feeling of the Spaniards toward their late foe, is, as I have said, less easy of answer. I have already related my own experiences and impressions as bearing upon the subject, and I do not question that if those of my fellow-Congressistes could be canvassed they would be found to be in accord with them. But the feeling of men of the class from whom such impressions were in the present instance derived, physicians of high intelligence and professional standing, might not possibly represent the feeling of a whole people. Spending as short a time as we did in Spain, and under such conditions as marked our progress through the country, we had little opportunity of learning the feeling of its inhabitants except those of one other large class. As this class embraced those engaged in one way or another in ministering to the foreign tourist, its opinion must of course be taken *cum grano*. The average hotel-keeper, railroad official, or for that matter, shopkeeper, is apt to have a somewhat selfish interest in the matter which may quite possibly affect his patriotic instincts, and the Norte Americano has just now, undeniably, the preference for frequency of appearance and lavishness of expenditure. As might be expected, then, the members of this class are unanimous in the expression of good-will toward the United States, and particularly toward the traveling representative thereof, while some go further and unhesitatingly condemn the war which for a time estranged the nations and sent the “Yanki” tourist to more favored lands. Representatives from the United States occasionally met, traveling with other purposes than our own, have told me of a different feeling among the classes with which they come in contact, and of a deep-seated resentment and ill-will which stands in the way of commercial dealings. It is claimed by them, for example, that Spanish dealers will not purchase, because they cannot in turn sell, American-made agricultural implements, so great is said to be the prejudice of the farmer and peasant classes.

Perhaps it is best to make answer that feeling varies with different classes and communities. That a portion of the press panders to and fosters ill-will in Spain, as here, goes without



saying. As I look at a Madrid organ now before me, to refresh my memory as to one of the pleasantest of my own experiences there, I find in the next column the headlines "Barbari Yanki en Filipinas," and under them a lurid summary of iniquities. Barring the language, one might just as well be reading the New York Evening Post.

In this connection it would seem proper to make mention of a contribution to the amenities which made an excellent impression and was most favorably commented upon at the time. At the King's reception, Dr. Carpenter, representing the United States Navy, appeared in the ordinary full dress of the civilian delegates, and it was learned that the Secretary of the Navy had directed that uniform be not worn, in delicate and tactful deference to the possible feeling of the host and his subjects. A little more of such thoughtful consideration upon either side and pacification will not be difficult of accomplishment.

I have endeavored, in what has preceded, to give impressions made upon me without drawing conclusions. I have been led from observation and experience to the belief that only first visitors to a foreign country are qualified to discourse authoritatively upon its manners, customs, laws, religion, dress, politics and what not, and having been in Spain once before, I am, of course, disqualified. We are all, perhaps, inclined to mar the infallibility of our utterances by jumping to conclusions and generalizing from incidents. When one of the young ladies of our party in the fortifications at Gibraltar, catching sight of the remnant of the Barbary apes, which keeps its habitat in the Rock, exclaimed "O! look at those monkeys," Tommy Atkins, in charge as cicerone, and from the height of his superior knowledge, corrected, "Them's not monkeys, mem, them's Ipes."

## ADDITIONAL NOTES UPON TENT TREATMENT FOR THE INSANE AT THE MANHATTAN STATE HOSPITAL, EAST.

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*By Drs. A. B. Wright and C. Floyd Haviland.*

A brief résumé of the tent treatment for special classes of insane, for the past year, as carried on at the Manhattan State Hospital, East, Ward's Island, New York City, under the direction of Dr. A. E. Macdonald, Superintendent, shows the most encouraging results.

Established in June, 1901, primarily for the treatment of the tuberculous insane, the system has been extended, so that now not only the above patients, but the demented, uncleanly and convalescent patients receive the benefit of continuous out-door life.

The camp for the tuberculous patients has been enlarged and a separate tent provided for the accommodation of the more active cases and those suffering from mixed infections, thus affording a secondary isolation from those in whom the disease is less active, the former class of patients being all confined to bed and in no case being allowed to come in contact with the remainder of the camp patients.

In general, the isolation of the tuberculous patients has been made more complete, as under no circumstances are they permitted to mingle with non-tuberculous patients. And this enforced isolation is bearing fruit in the lessened number of phthisical cases diagnosed in the wards of the hospital, despite constant care to discover all such in their incipency.

Having succeeded in continuing one large tent of twenty beds in use during the winter of 1901-1902, it was determined to carry on the phthisical camp in its entirety during the past

winter, and the same successful results have characterized this effort as marked the camp treatment during the summer months. The two large tents, each with a capacity of twenty beds which are used, were removed to a sheltered portion of the hospital grounds, as was a third tent of the same size, which was erected adjacent to the other tents, but which contained no beds, it being partitioned by screens into a dining-room and living-room for such patients as were not confined to bed. For it was found that only the large tents could successfully withstand the severe weather of the winter months, and by this new arrangement we were able to dispense with the small auxiliary tents that are employed during the summer as dining-tents, living-tents, etc. Large coal-stoves provided ample heating facilities in the most severe weather, but a high temperature within the tents was avoided, inasmuch as the cool air has, in this treatment, appeared to exert a decided therapeutic effect of its own. The large living-tent was left somewhat cooler than the tents in which the beds were placed, so that the walking patients in going in and out of doors would not be compelled to experience too sudden changes of temperature. And notwithstanding this constant exposure not a case of ordinary cold or pneumonia developed during the entire winter. It is thus seen that no adverse results occur, even under unfavorable climatic conditions such as those to which our patients were necessarily subjected, provided the patient lives a constant out-door life. And the success which will be shown to have justified the continuance and extension of the camp treatment at the Manhattan State Hospital, East, also demonstrates that a high, dry altitude is not absolutely essential for the successful treatment of pulmonary tuberculosis. The camp for such patients is situated but sixty feet above tide-water, which fact in itself does not prove so disastrous as do the strong sea winds here encountered. To combat their evil effect the situation of the tents is selected with a view to the greatest possible shelter, and a high board-fence along one side breaks the force of the most frequent winds.

During the past year, 84 phthisical patients received the camp treatment, among whom 23 deaths occurred. Four of the latter number, however, died from intercurrent diseases, one from status epilepticus, one from hepatic cirrhosis, one from acute enteritis and one from tubercular enteritis. With but one ex-

ception these four patients had previously been improving until the secondary disease developed, and in none was the pulmonary tuberculosis a direct cause of death.

Excluding these four cases and comparing the nineteen deaths resulting directly from pulmonary tuberculosis with the total number of deaths occurring in the hospital during this time, it is found that but 8 per cent of our deaths were due to this disease, the lowest percentage in the history of the hospital and a decrease from 8.8 per cent of such deaths occurring during the previous year—the first year of the camp treatment—which percentage was at that time the lowest the hospital had ever experienced.

Of the 19 phthisical patients who died all were in an advanced stage of the disease when admitted to the camp, having an average weight of but 109 lbs. On admission four weighed less than 100 lbs., and one had a weight of but 73 lbs. With but one exception these patients all showed a progressive loss in weight until their death; one patient, however, remained in practically a stationary condition, having gained one pound in weight, when he suddenly became maniacal and so remained for several days, until death occurred. The average camp residence of these patients was but one month and 29 days, the longest being 5 months and 8 days, the shortest but seven days.

Among the 84 patients treated, one has been discharged free from any symptoms of an active phthisical process and recovered from the acute melancholia from which he also suffered, while it has been possible to send 13 patients into the wards, with the disease apparently arrested. In but two of the latter cases was it found necessary to return them to the camp, the disease having again become active after an indoor residence of two and four months, respectively. In one of these patients tubercular peritonitis developed, but after being in a critical condition for some weeks he is again beginning to improve and the peritonitis is subsiding. But the 12 patients in whom the disease has not reappeared give 14.28 per cent of the patients treated, in whom it is apparently permanently arrested.

It may be stated that the changes in weight in pulmonary tuberculosis indicate accurately the general condition of the patient.



Excluding the patients who died, and thus considering only the remaining 61 treated during the past year, the following results are obtained as regards weights upon the beginning and close of camp treatment, or in the case of those still in the camp, up to the present time:

7 patients lost weight.

53 patients gained weight.

1 patient remained unchanged.

Greatest loss, 15.5 lbs.

Smallest loss, 1 lb.

Average loss, 6.57 lbs.

Greatest gain, 45 lbs.

Smallest gain, 3 lbs.

Average gain, 15.56 lbs.

These statistics show a decided improvement over those of the preceding year, due no doubt to perfected personal hygiene. Of the 12 patients who were discharged from the camp in whom the disease remains in abeyance the gain in weight ranged from 17 lbs. to 45 lbs. One remarkable case upon admission to the camp was in a critical condition, weighing but 83 lbs., and life was only sustained by free stimulation. He began to improve, however, now weighs 121 lbs., and is gaining daily.

Of these 61 patients considered in the above statistics 23 cases were under treatment the previous year and following are the results since their original admission to the camp:

20 gained.

3 lost.

Greatest gain, 83.5 lbs.

Smallest gain, 3 lbs.

Average gain, 21.75 lbs.

Greatest loss, 5 lbs.

Smallest loss, .5 lb.

Average loss, 2.66 lbs.

In the absence of any specific germicide it is now generally acknowledged that the basic principle in the treatment of pulmonary tuberculosis lies in hygienic and dietetic measures, and full use of these means is made in our camp treatment. Dealing as we do with insane patients, the greatest difficulty has been experienced in properly caring for the sputum, but by continued effort the majority of the patients are taught to use

cuspidors and spit-cups, the latter being made of papier-mâché and being burned after use. Some few demented patients, who are untidy in their habits and who expectorate wherever they may be, are kept in bed, and the floor on each side is covered with sheets, which are dampened with an antiseptic fluid and frequently changed.

No patient with a continuous or marked elevation of temperature is allowed out of bed, rest being an important factor in the recovery of such individuals. But in selected cases daily exercise is employed and such patients as are mentally capable pass their leisure during the summer months in playing croquet, quoits, and some few are allowed to play baseball.

Aside from the extra diet and pure air the resistance of the diseased organism is augmented by the use of simple restoratives and tonics, while numerous patients are found who are unable to assimilate the rather large amount of food given them without medicinal aid. Symptomatic treatment is employed in the relief of cough, fever, etc., but the greatest benefit results not from the medicinal treatment of the special conditions, but from the constant bathing in pure air and from the hygienic surroundings, which in themselves promote assimilation and enable the system in many cases to successfully combat the invading bacillus.

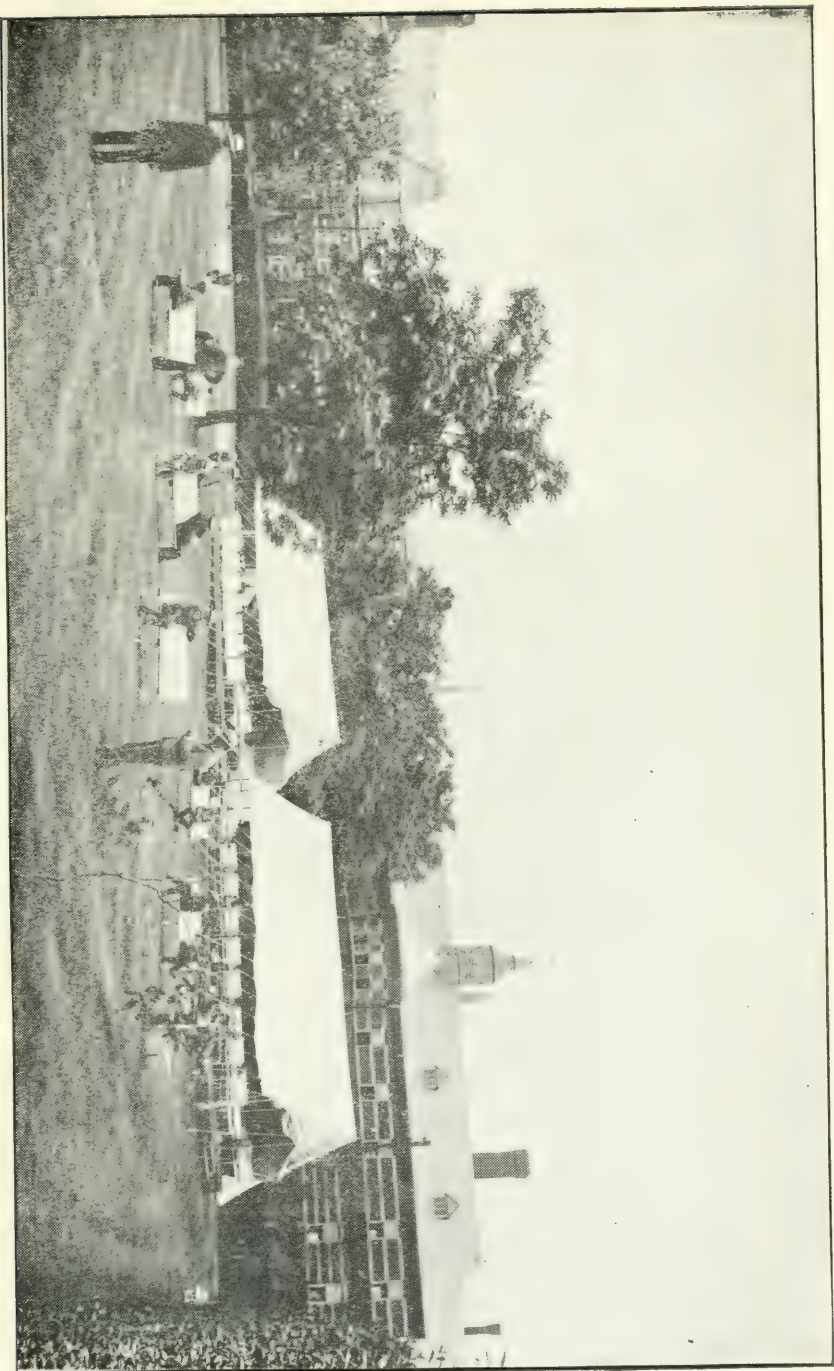
On the 25th day of June, 1902, the second season of the camp for demented and uncleanly patients was opened. The results were equally satisfactory as during the previous year, improvement being noted both mentally and physically in all cases. The plan carried out was practically the same as in the previous year, an assortment being selected who were for the most part stupid and demented and also very uncleanly in their habits. Four paretics and one epileptic were placed among the number. The system of weighing was carried out as heretofore, the weight being taken on admission and after every subsequent second or third week. On admission three weighed less than 100 lbs., the lowest weighing only 86 lbs., a paretic in the last stage and who had been in the camp the year previous. The highest weight was 145 lbs. on admission. At the second weighing every patient had gained in weight except two of the paretics who weighed exactly the same. The highest gain was 14 lbs. At the next weighing all had gained over their last weight, except three who weighed the same but had gained over the first weight.

The highest gain over the first weight was 17 lbs. The next weighing showed a gain in all except one, who weighed the same, but had gained over his first weight. The highest gain was 18 lbs. The last weighing showed that every patient in the camp had gained over the previous record. The highest gain was 22 lbs. over the first weight, the lowest being 5 lbs. The average gain for the camp season per patient was 12.5 lbs.

The results were even better than last season for several reasons. A few of the cases were more unfavorable for treatment, such as the four paretics in the last stage and one epileptic.

The average gain per parietic was only four lbs., which would tend to diminish the average, they being very filthy in their habits on admission, and the treatment only sufficed to prolong their lives, as they have all died since the breaking up of the camp. The epileptic boy gained 16 lbs., and it was noticed that his seizures became less frequent, he became brighter and made an improvement in every way. It has also been noticed that since going into the wards his seizures have become more frequent and he is gradually passing into a state of dementia. Another patient, who seemed a very unfavorable case on admission, gained 15 lbs., became bright and cheerful, and at the time of the breaking up of the camp was perfectly clean. The depression and apparent dementia disappeared and he became a willing worker. Another was a case of chronic melancholia, who would refuse to eat at times and would lapse into a state of stupor. He gained 6 lbs., but for three weighings weighed the same. His greatest gain was the last weight, and he would undoubtedly have made a greater advance had the season lasted longer. A great mental improvement was noticed and he began to take an interest in his surroundings, even asking for employment, realizing that he needed employment for his mind and body to better his condition. Another who was a very uncleanly patient, gained 17 lbs.; his mental condition also showed great improvement, and he also asked for employment and wished to be sent to one of the best wards on the closing of the camp.

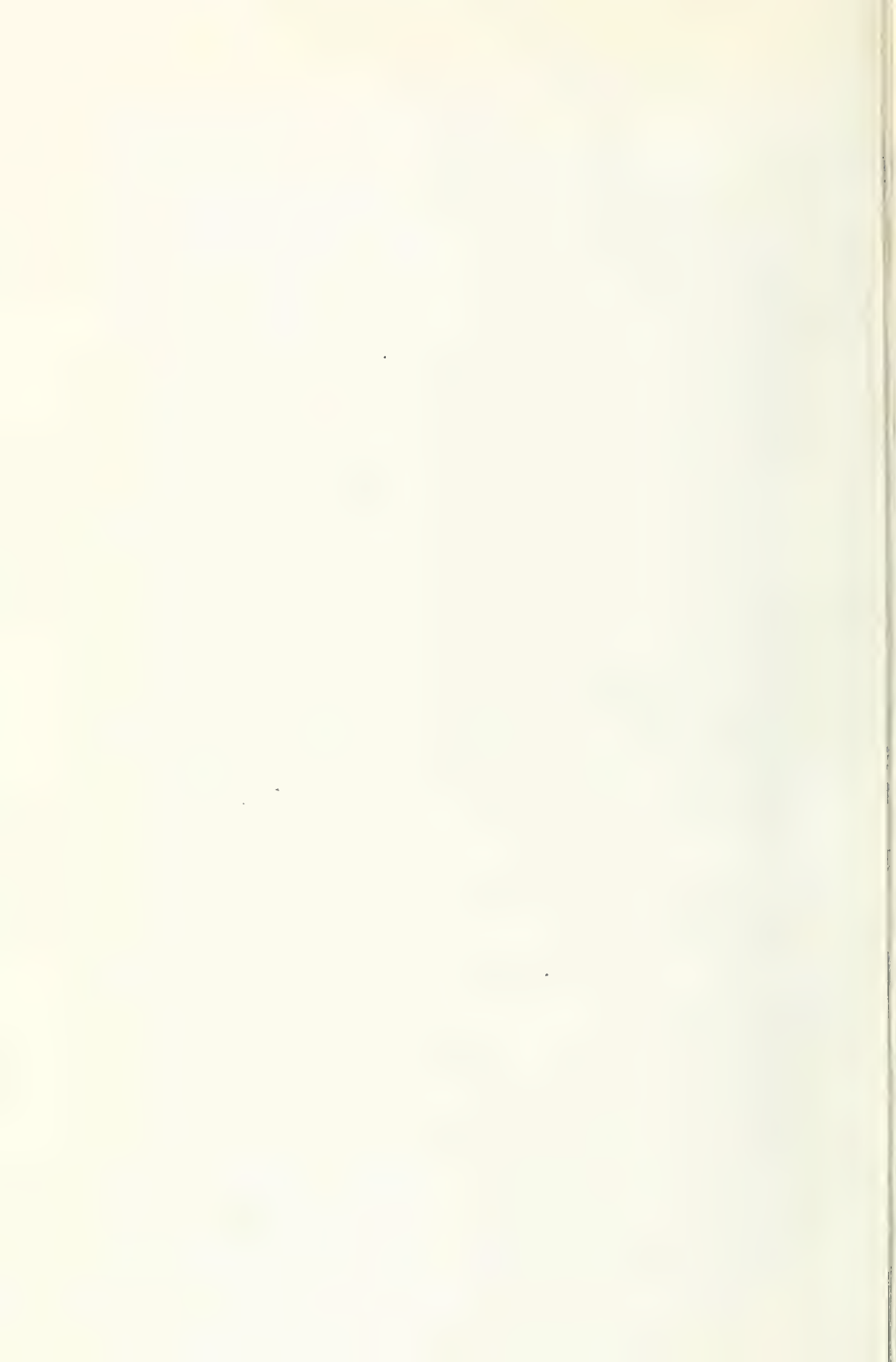
The third camp season for this class of patients will open within a short time, as will a camp for convalescent workers, which we are justified in believing will show the same encouraging results.

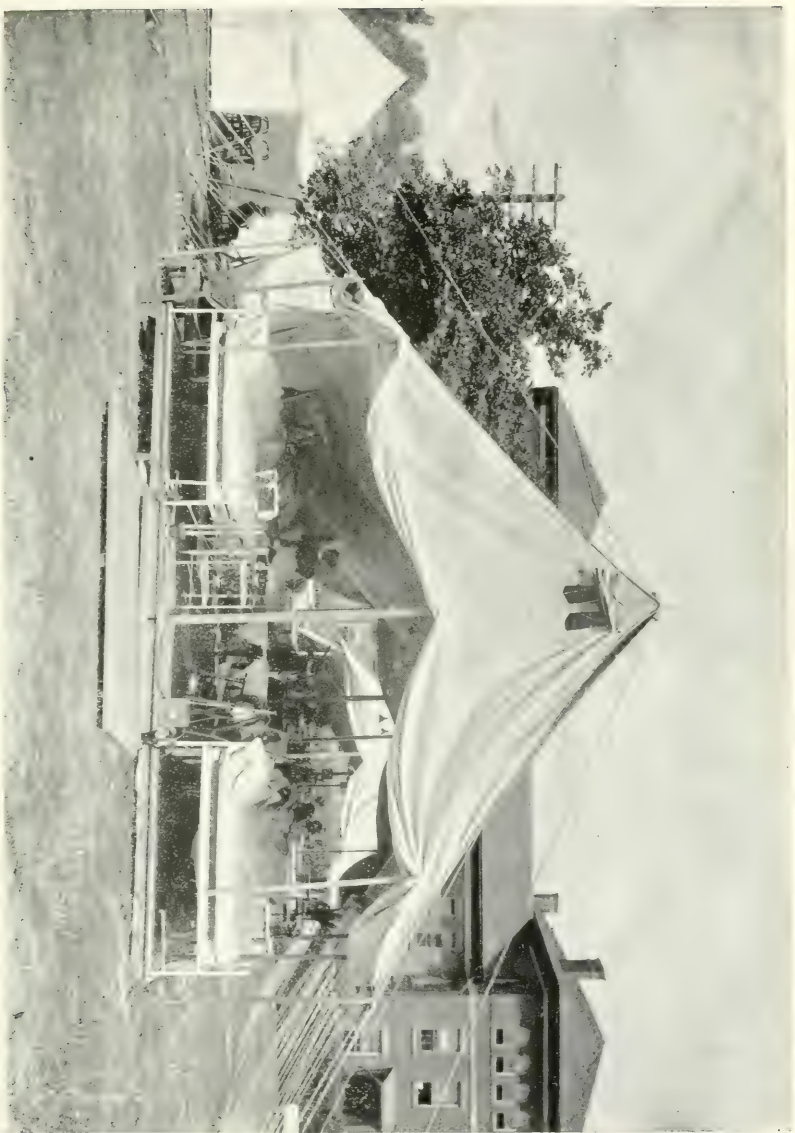


MANHATTAN STATE HOSPITAL, EAST.

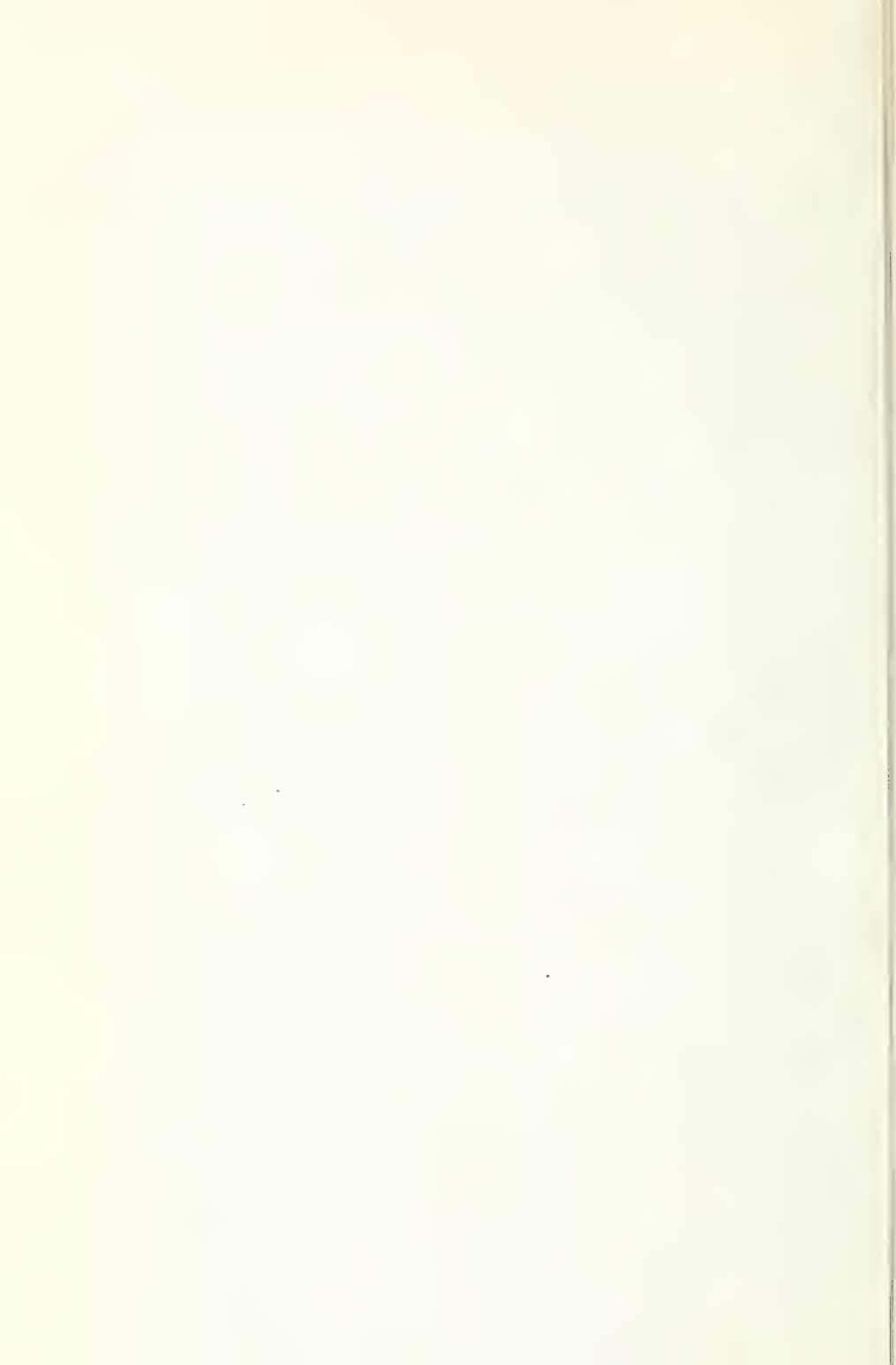
GENERAL VIEW OF TUBERCULOSIS CAMP, LOOKING SOUTH.







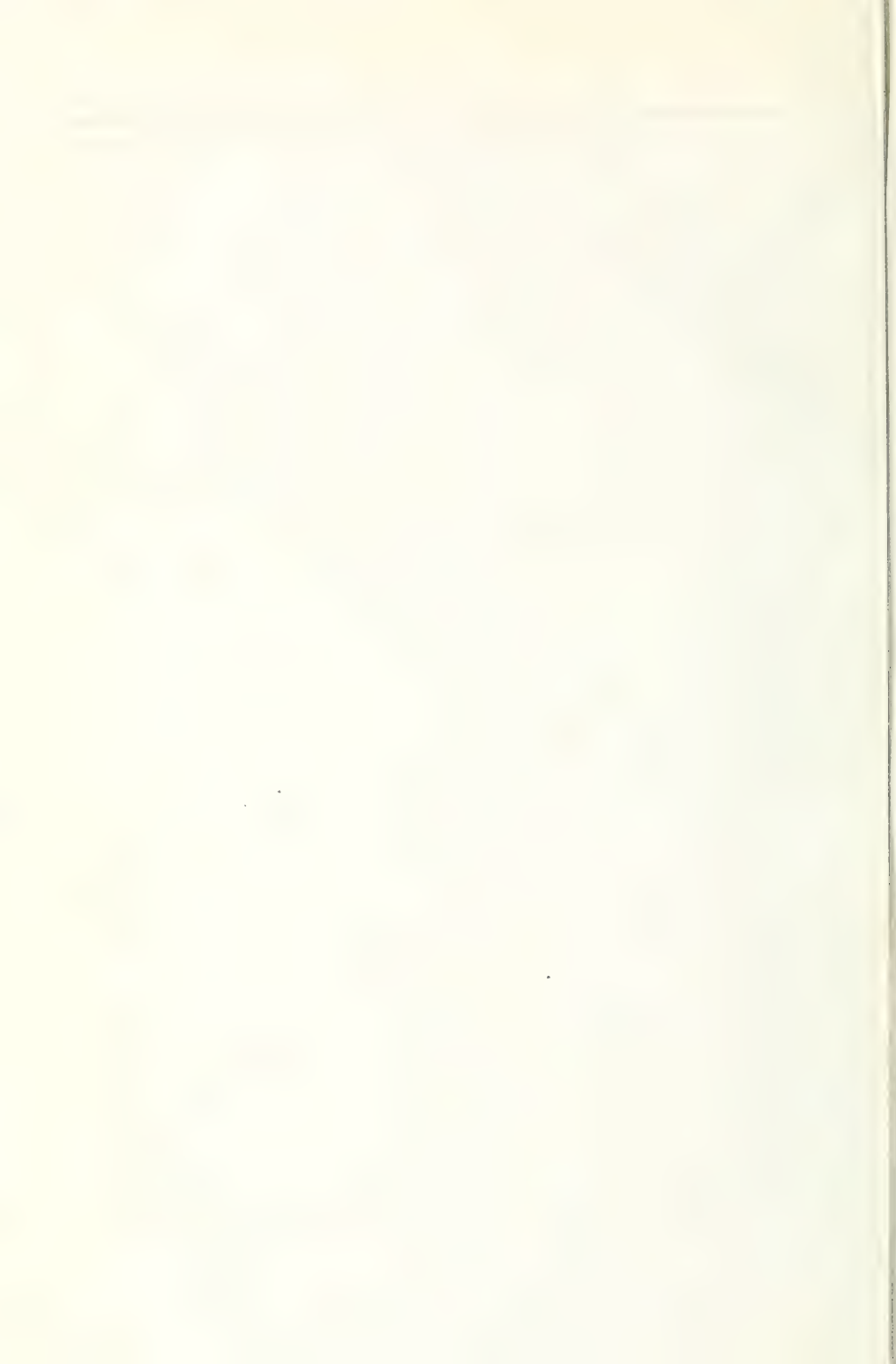
MANHATTAN STATE HOSPITAL, EAST.  
INTERIOR VIEW OF TUBERCULOSIS CAMP.

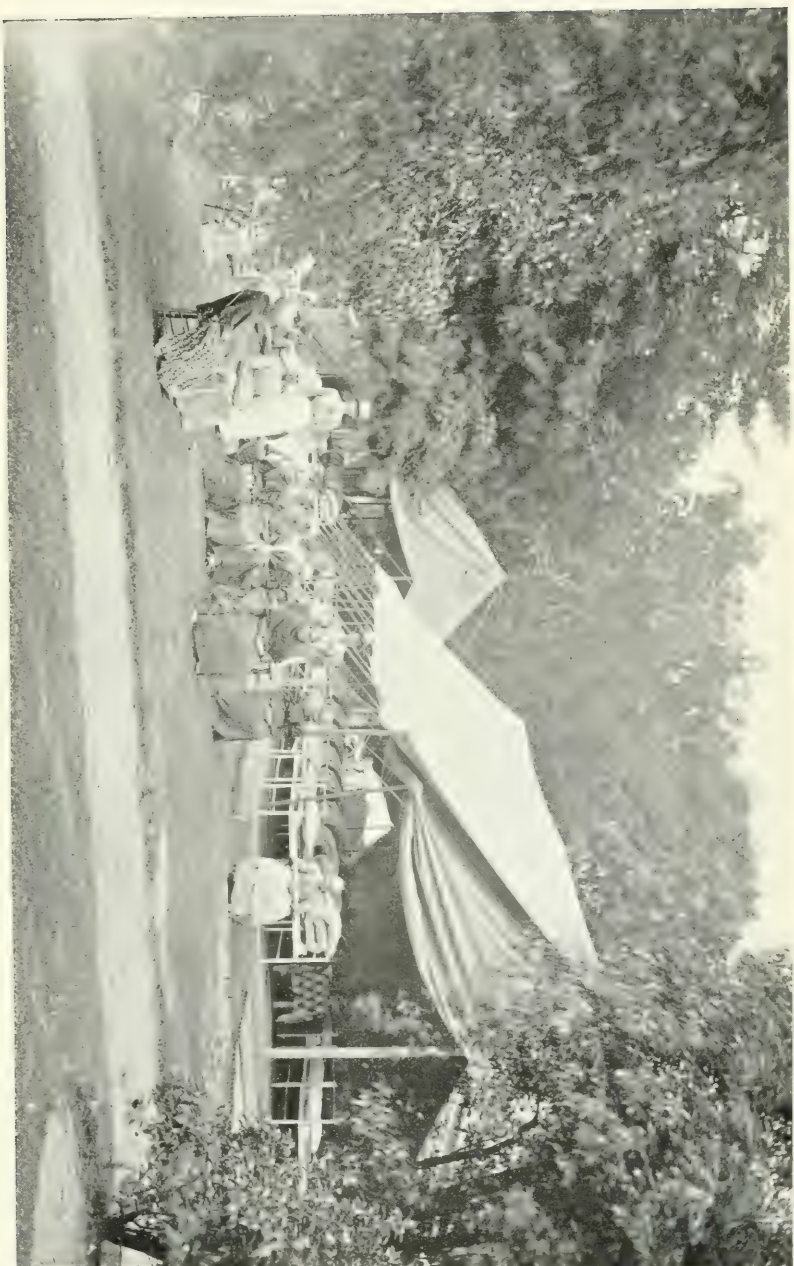




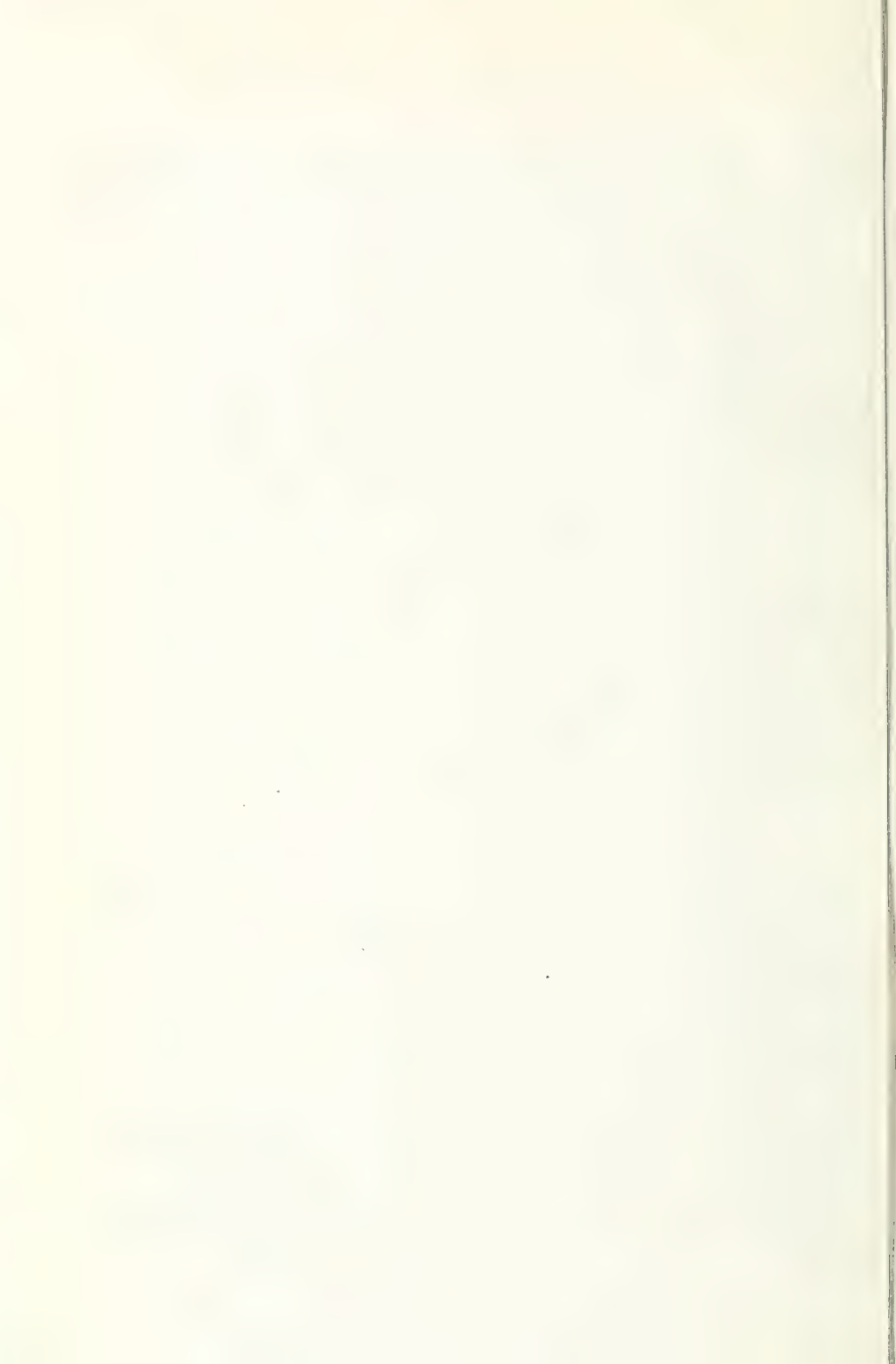
MANHATTAN STATE HOSPITAL, EAST.  
GENERAL VIEW OF TUBERCULOSIS CAMP, IN WINTER LOCATION

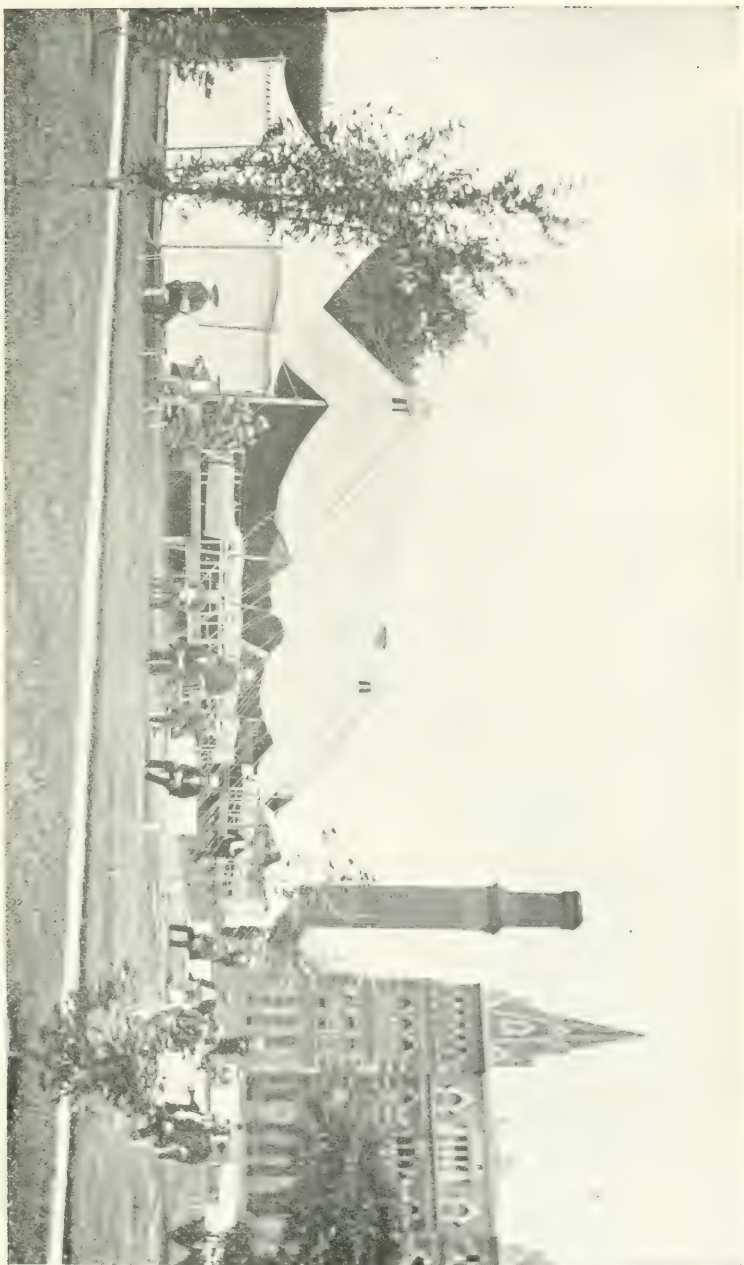






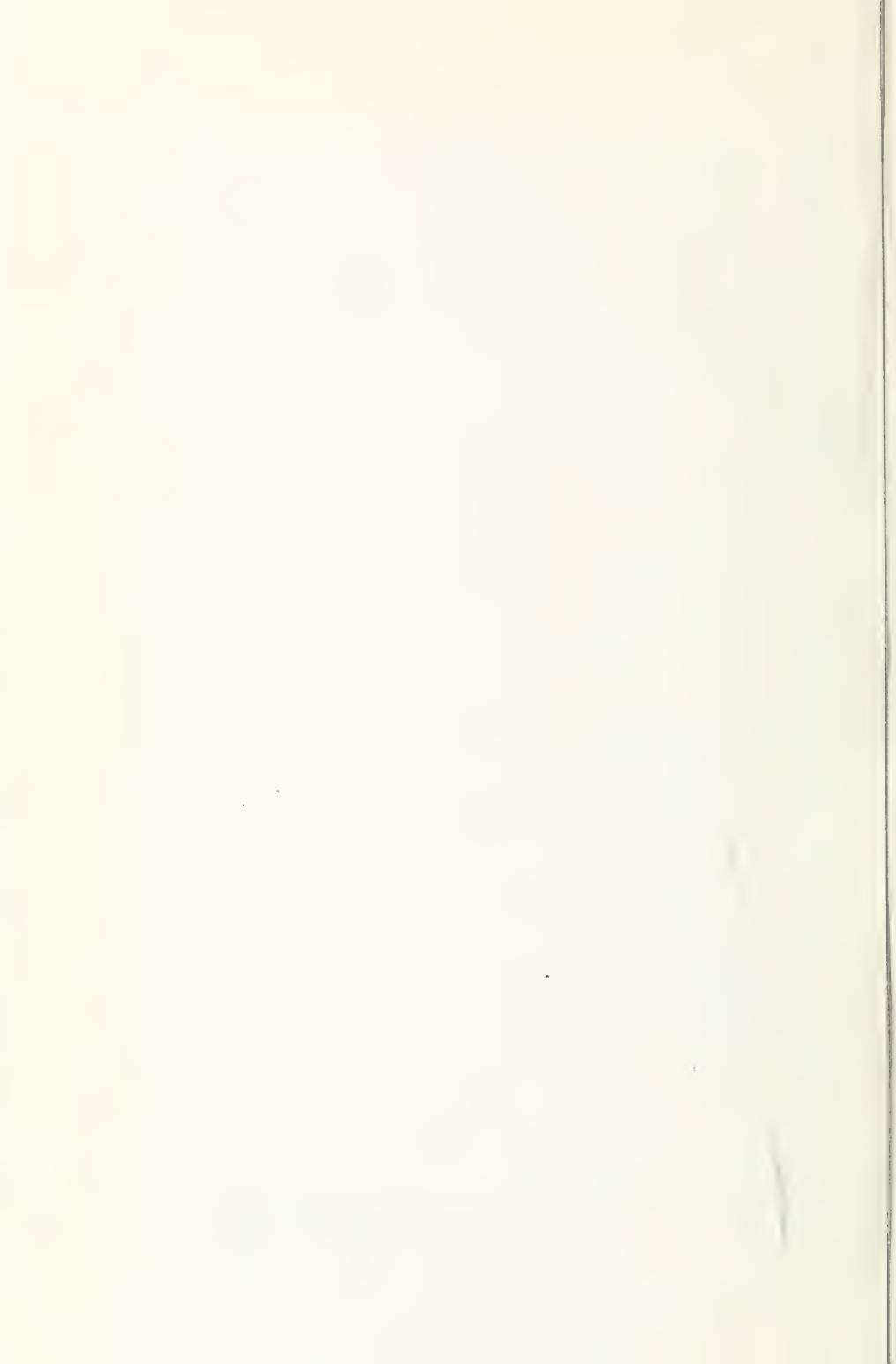
MANHATTAN STATE HOSPITAL, EAST.  
GENERAL VIEW OF CAMP FOR DEMENTED AND EPILEPTIC PATIENTS.

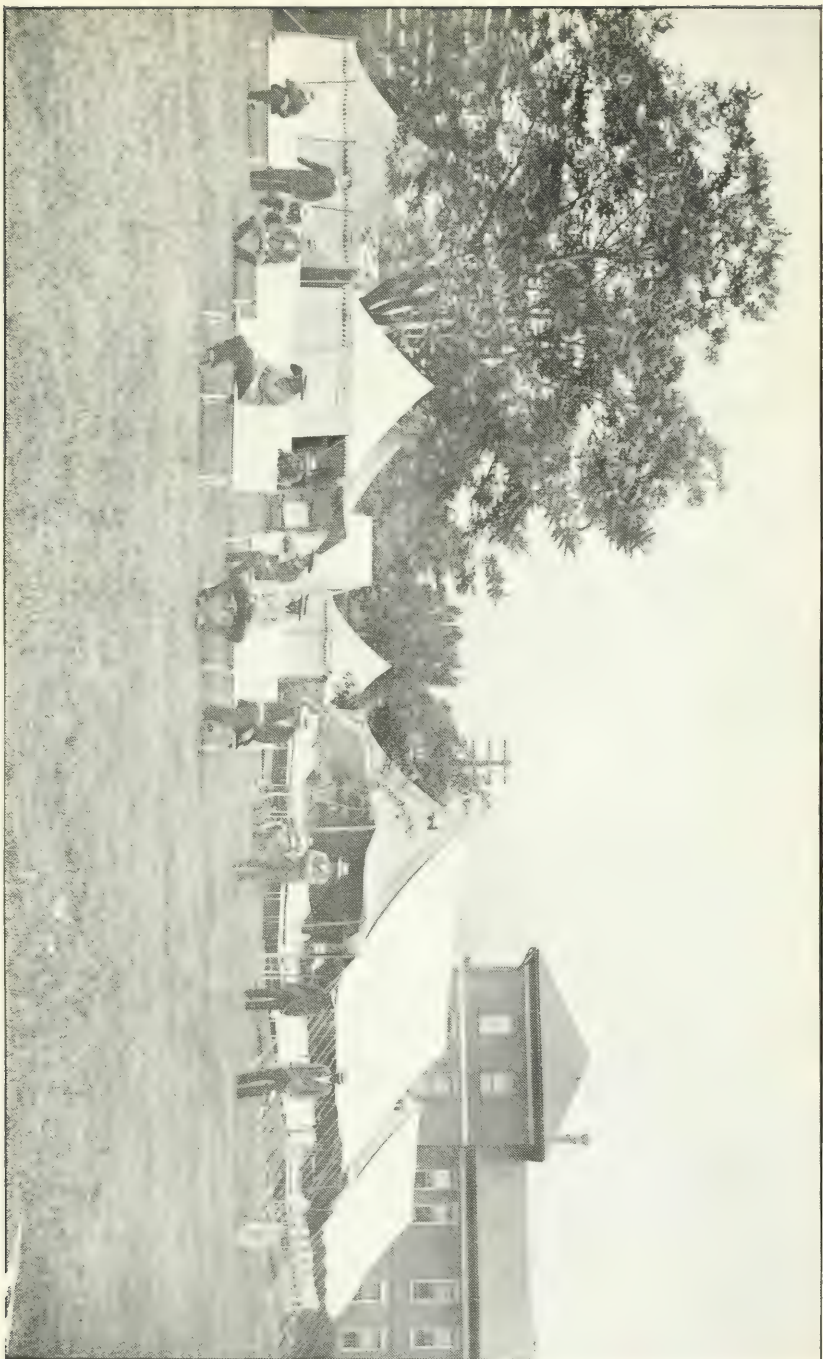




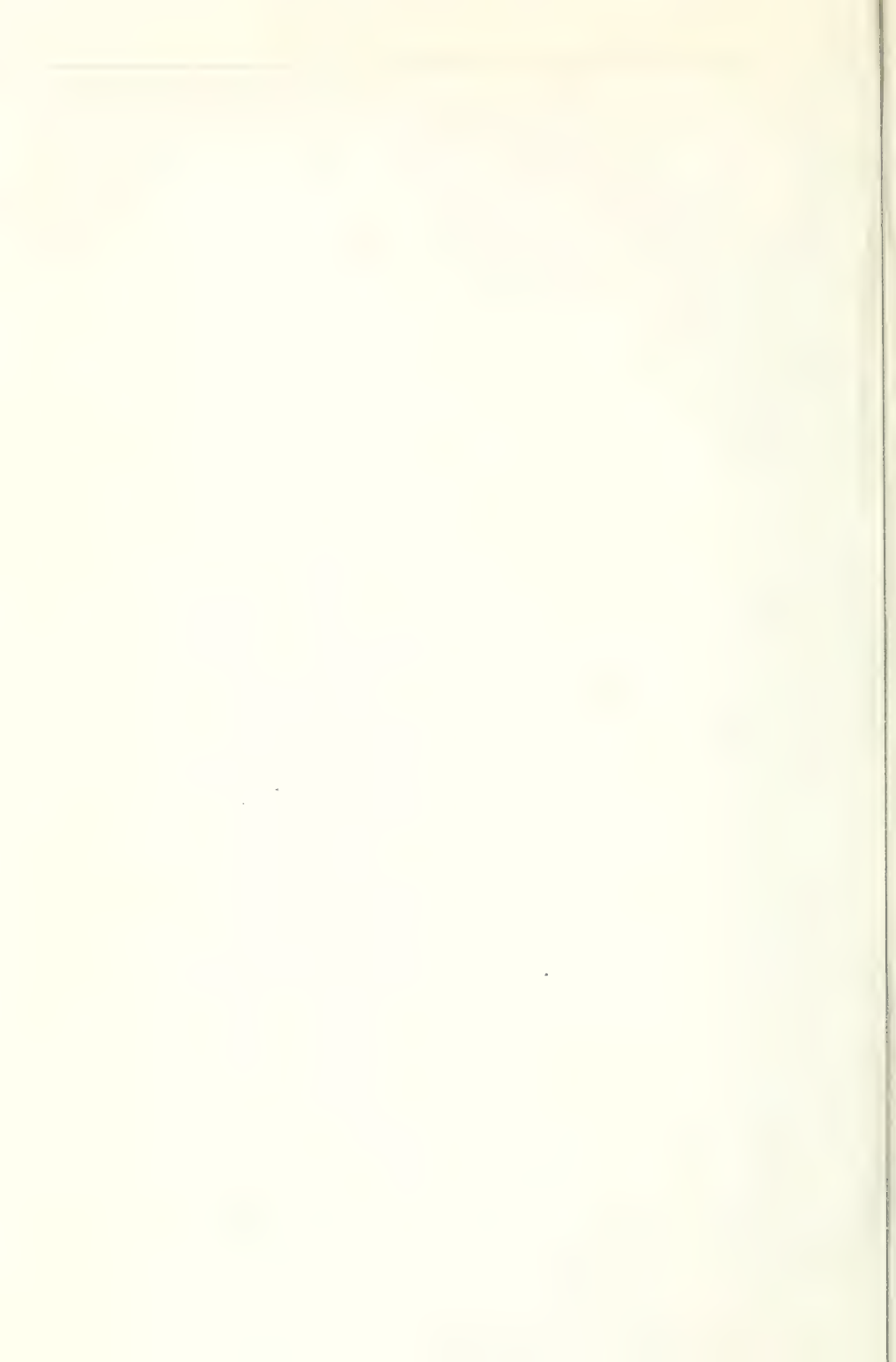
MANHATTAN STATE HOSPITAL, EAST.  
GENERAL VIEW OF CAMP FOR CONVALESCENT SHIPWORKERS.







MANHATTAN STATE HOSPITAL, EAST  
GENERAL VIEW OF TUBERCULOSIS CAMP, LOOKING WEST.



Only such patients as are employed indoors in the various work-shops of the hospital will be placed in this camp, thus affording to these patients, who are of necessity somewhat confined, an added opportunity to receive the benefit to be gained from fresh air and hygienic surroundings.

In conclusion we would state that we consider the results obtained with the camp treatment at the Manhattan State Hospital East, to be of such a character as to warrant us in employing it as a practical therapeutic measure in the modern treatment of the insane.



## BLOOD CHANGES IN DEMENTIA PARALYTICA.

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The blood of patients suffering from dementia paralytica has been the subject of microscopical study by many observers during the past fifty years, but none have made regular and systematic examinations extending over a considerable portion of the course of the disease. Believing that such a study, so conducted as to eliminate all known physiological changes, might throw further light upon the nature of this important disease, this work was begun at the suggestion of Dr. August Hoch in the spring of 1901. The present is a preliminary report upon eleven cases.

### HISTORICAL.

The earliest known studies of the blood of paretics were made by Erlenmeyer and Hittorf in 1846 and 1847, Michae (1848), Sutherland (1873), and Voisin (1879), but as their studies were made with instruments which would not give results comparable with our own, they are not taken into consideration.

Macphail<sup>1</sup> in his study of fifteen cases of paresis in which he laid special stress upon the blood state in different stages of the disease, ascertained that the haemoglobin and erythrocytes were relatively low in the first stage, increased slightly during the quiescent period and diminished greatly during the final stage, but showing as a whole a qualitative and quantitative diminution which runs parallel to the progress of the disease; also, that the leucocytes increased proportionately toward the end of the disease, and finally that states of excitement seemed to have an especially great influence upon the condition of the blood.

Thompson, as quoted by Macphail, in the examination of five typical cases of paresis in the stage of onset, the demented and the paralytic stages, found that within the first six months, the hæmoglobin averaged 66.2%, and the proportion of the white and red cells to be 1:308; six to fifteen months, hæmoglobin 70% and whites and red 1:176 and toward the end of the disease, hæmoglobin 60.6% and proportion of whites to reds 1:124.

The conclusions of Lewis, cited by Capps, were similar to those of Thompson.

Smyth<sup>2</sup> in the study of forty cases of paresis in which the duration of the disease varied from the 2nd to the 33rd month, discovered that there was a diminution of hæmoglobin, except during periods of great exaltation; and a marked falling off in the number of red cells.

Winkler,<sup>3</sup> in four cases of paresis, three of whom were moderately nourished and one well nourished, found the hæmoglobin diminished as well as the number of red blood corpuscles. In one case they were high. They always diminished as the disease approached its termination. The changes of the blood were parallel with the loss of weight. In the stages of excitement the hæmoglobin and red blood corpuscles both diminished at the onset, remained stationary in the period of quiescence and fell rapidly in the last stage. The body weight presented a similar change, i. e., in the stage of quiescence it remained the same or increased slightly and in the end stages fell rapidly. Paralytic attacks had a bad effect upon the blood and produced a loss of weight.

Kryspiakiewicz<sup>4</sup> examined fifteen cases of paresis, mostly progressive cases, and some during the terminal state and when suffering from acute decubitus. While his observations in general agree with those of Smyth, he also frequently found poikilocytosis, and a larger number of megalocytes and a smaller number of microcytes than is normally present.

Roncoroni,<sup>5</sup> in the study of fifteen paretics in which he paid special attention to the eosinophiles, found that they were sometimes increased, sometimes diminished, but rarely normal, and that in paretic excitement there was regularly an increase which in one case reached 25%.

Burton, as cited by Somers, found in four cases of paresis, a diminution of the leucocytes and of the hæmoglobin.

Somers,<sup>6</sup> in the examination of five cases of paresis, discovered a falling off of the erythrocytes and a slight increase of the leucocytes (8,800) and a decline of the hæmoglobin (74.2).

Capps,<sup>7</sup> in nineteen paretics, found a more or less striking diminution of hæmoglobin (70.92%) but a steady increase was noted dating from the admission to the hospital, which by the author was believed to be due to the improved hygiene and nutrition. In only four cases did the erythrocytes reach 5,000,000. There was present in the majority of cases a moderate leucocytosis, yet no conclusion could be drawn as to the relationship between the different stages of the disease and the degree of leucocytosis. He, however, failed to find a leucocytosis in two cases examined within four months of the onset, while one case of the same duration but of rapid progress, did exhibit leucocytosis. In studying the variety of leucocytes he found that the small lymphocytes were less numerous than normally and the large lymphocytes were slightly increased, but sometimes three times the normal amount. The polymorphonuclear variety was slightly increased in fourteen of the nineteen cases, but in only one instance above 78.8%.

Of rather more importance was his observation in reference to the blood changes at the time of a paralytic attack. Shortly preceding paralytic attacks there was an increase of the erythrocytes and hæmoglobin, and shortly following them a very transitory but pronounced leucocytosis. The erythrocytes and hæmoglobin fell a few hours later. The intensity of the leucocytosis depended upon the severity and the duration of the attack.

Jelliffe,<sup>8</sup> in his observations which consisted of one examination in each of seventeen cases, ascertained that the hæmoglobin was reduced in nearly all cases, that the erythrocytes were comparatively high, the number being increased in fourteen of the seventeen cases, and in eight of these amounting to more than 6,000,000. The leucocytes were reduced in seven cases, and in only three cases was a leucocytosis recorded, and accompanied in each case a "general exalted condition." His observations on the differential count in general accords with those of Capps, except that the author calls attention to the complete absence of eosinophiles in some cases.

## CASES.

Case 1. The patient developed his psychosis at the age of forty. The family and personal history, as well as of the psychosis, was very meagre. He was known to have been intemperate. The character of the disease during the first twelve months was one of simple progressive dementia, which did not necessitate confinement. He then rather suddenly exhibited great motor restlessness with violence, expressed many expansive delusions of a religious nature, and some hallucinations, and consciousness became greatly clouded. He was admitted to the hospital two weeks later. The condition of parietic excitement continued without abatement for about one month, when it gradually disappeared leaving the patient in a condition of profound dementia with greatly impaired memory, clouded consciousness, paralysis of thought and volition, and emotional indifference. Extremely expansive and nihilistic delusions were alternately expressed, while his conduct was characterized by occasional outbreaks of irritability and violence, but otherwise he was orderly and able to care for himself. Physically, he presented fine muscular tremor, considerable incoordination, faulty articulation, exaggerated deep reflexes, and unequal pupils, which responded to light within narrow limits.

The patient was in this condition at the time the blood examinations were begun, and continued without appreciable change until the twenty-fourth month, when he gradually became noisy and extremely filthy, but did not show any other evidence of increasing psychomotor activity. Meanwhile he had improved greatly in nutrition. In the twenty-sixth month following a rather rapid fall in nutrition, he suddenly developed an apoplectic attack with left hemiplegia from which he recovered in five days. He then, for the first time, expressed delusions of poisoning and persistently refused food, with consequent rapid emaciation and death twenty two days later, preceded by somnolence, and finally stupor. The paralytic attack was followed in twenty-four hours by a high temperature ( $104^{\circ}$  deg.) which subsided on the third day, but from that time until death there was a pretty constant daily variation of temperature extending from  $96.6^{\circ}$  deg. to  $100^{\circ}$  deg. There was no evidence of an acute inflammatory process which might account for a leucocytosis. The weight fell rapidly during the final fourteen weeks, dropping from 157 to 85 lbs.

A post-mortem examination was not made.

The study of the blood in this case, which comprised sixty-one weekly examinations began just after the subsidence of the parietic excitement. During the first month both the hæmoglobin, the erythrocytes and leucocytes averaged below normal, but following this and during the entire quiescent period, except for four weeks preceding the paralytic attack and when the nutrition was beginning to fall, the hæmoglobin averaged 85%, thence the hæmoglobin fell to an average of 74% until it began to rise nine days before death, and two days before death reached 92%.

The erythrocytes rose to normal and remained within normal limits until the fall in nutrition, when they fell to below normal and remained there until the nine days previous to the paralytic attack when they rose to nor-



mal and gradually increased until they reached 6,386,000 two days before death.

The leucocytes following the first four weeks remained high normal for two and a half months, then they fell to low normal and at times below 5,000, where they remained for ten weeks, then high normal for four weeks, followed for sixteen weeks by a count varying between 8,600 and 6,000 with one exception, when for a week they rose to 9,500. Then one week previous to the fall of nutrition, when both the percentage of hæmoglobin and number of erythrocytes diminished, the leucocytes fell to 5,000 and remained subnormal with one exception (6,800), until the terminal rise which began sixteen days before the paralytic attack, but did not become a distinct leucocytosis until the ninth day following it. The leucocytosis reached its height seven days previous to death and fell on the last count to 13,500. Among the leucocytes, the polymorphonuclear variety predominated throughout, the percentage of which varied from 5-26% above the normal, upon only one occasion did it approach normal and then it was 71.8%. The greatest increase appeared during the final leucocytosis, when the percentage remained above 92% during the last four counts.

Case 2. This patient, a well developed man, whose occupation was that of a hackman, of good family and clean personal history, gave the first evidence of his disease at the age of forty-two. It was of gradual onset, with a loss of interest in his work, and a lack of endurance. At times he was also forgetful; he, however, continued at work for seven months, at which time he rather suddenly developed many changeable delusions of grandeur, with a feeling of well-being and an increased activity. One month later when admitted to the hospital he showed a defect of memory for both recent and remote events, a pronounced feeling of well-being, some pressure of activity, together with the most extremely expansive delusions, insomnia, anorexia and loss of weight. Consciousness was clear and there were no hallucinations. Physically, there were contracted pupils which were irresponsive to light, general muscular tremor, faulty articulation, some ataxia of the lower extremities, absence of knee jerks, and a lack of muscular tone. In the ninth month he developed great activity, with destructiveness, noisiness, partial cloudiness of consciousness, and change of personality—believing himself God.

It was during this condition of excitement that the first examination of the blood was made. After a duration of two months this condition suddenly disappeared, leaving the patient in a condition of deeper dementia, especially in the matter of memory. He continued mildly elated, but orderly in conduct and exhibited considerable interest in ward duties and in reading. Moderately expansive delusions persisted, and while he could voluntarily help diligently on the ward, he maintained his ideas of great wealth and promised to bestow costly presents upon those about him. After an intermission of five weeks the condition of great excitement returned and continued for one month, when it again vanished. During it the delusions of grandeur were still more extreme, motion was almost constant, and there was a complete inability to care for himself. He lost sixteen pounds in weight, and at the end showed great muscular weakness. At

this time the feeling of well being was replaced by one of despondency and fear of death, and all delusions vanished. Memory and judgment, however, were greatly impaired. While he was quite orderly in conduct, took some interest in his surroundings, aided in ward duties, and spent much time in reading, he had lost all powers of endurance, and usually became so fatigued by afternoon that it was necessary for him to go to bed; at the same time speech became confused. The condition of muscular paresis gradually progressed, and terminated fatally in an attack of syncope in the fourth month, the total duration of the disease being nineteen months.

The temperature during the last four months occasionally dropped to 96 deg. and even 95 deg., and rose to 100 deg., and on a few occasions to 102 deg. and 103 deg. without any apparent cause. During the two weeks preceding the paralytic attack it was mostly subnormal. Ten days before death it rose to 100.6 degrees, thence there was a daily rise and fall, varying between 100.8 deg. and 97 deg., reaching 101.8 deg. on the day of death. There were no objective signs of acute inflammation process. The weight fell gradually from the eleventh month, when it was 139, to 79 pounds at the time of death. An autopsy was refused in this case.

The blood analysis began during the height of his first paretic excitement. The first two examinations which were made at an interval of twenty-six days, showed the hæmoglobin to have risen from 73 to 100%, and the leucocytes from 6,500 to 10,300, while the erythrocytes remained at low normal. The remaining counts were made bi-weekly until the last two months, when they were made weekly. In the remission of five weeks the hæmoglobin remained between 77 and 83%, the erythrocytes rose from low to high normal, while the leucocytes went up to 14,000 and then fell to 7,800. In the period of excitement which followed this for two months, but which was not as intense, though it led to great physical weakness and the loss of nearly sixteen pounds in weight, the hæmoglobin varied between 76 and 102%, the erythrocytes remained normal and high normal, and rose at one time to 5,800,000 and there was a leucocytosis except for one week, when the leucocytes fell to 8,700. During the quiescent period of four months, which followed, the hæmoglobin varied from 62 to 89%, but averaged 76%; the erythrocytes remained normal and high normal except on two occasions, when they fell to 4,000,000, and 4,500,000, the leucocytes varied considerably, twice falling to nearly 6,000 and once below, and three times showing a moderate leucocytosis; otherwise they were about normal. The examination of the blood on the day of the collapse showed the hæmoglobin at 67%, the erythrocytes at 4,888,000 and the leucocytes at 8,400. Six days later, while the patient continued to fail and at the time was in a semi-comatose condition, the hæmoglobin rose to 82%, the erythrocytes to 5,892,000 and the leucocytes to 16,000. Death occurred sixty hours later.

The differential count showed throughout the whole psychosis a great increase in the percentage of polymorphonuclear leucocytes, which reached at the last two counts 90 and 86.4%.

Case 3 This case is not cited in full because of the limited study of the blood, which comprised two examinations, on the twelfth and seventh days before death.

The patient first gave evidence of the psychosis at 54 years of age. There was some insane collateral heredity, but otherwise no etiological factors could be ascertained. The disease was of gradual onset and the symptoms were those characteristic of the demented form, until one week previous to his commitment in the twelfth month, when he rapidly developed symptoms characteristic of the agitated form of the disease. This condition of intense excitement continued until he fell into a semi-comatose state seven days before death, which gradually deepened, being accompanied by a dysenteric condition. The physical signs of the disease were well advanced at the time of his admission. The patient was much emaciated, which condition rapidly increased until death. There was no autopsy in this case.

In the two blood examinations the percentage of hæmoglobin was at first 90%, but then fell to 65%. The erythrocytes were normal and then fell below normal; the leucocytes showed a leucocytosis (10,000) which advanced to 14,100 in which there was an increased percentage of polymorphonuclear leucocytes (84 and 86%).

Case 4. This patient came from a family whose members had been stigmatized as "cranks, criminals or insane for three generations." She was committed to the Industrial School during girlhood and remained there until twenty. Following this she led a life of immorality and intemperance, and for a number of years previous to the onset of the psychosis, was indolent, slovenly, and dependent upon her mother for support. From the age of twenty-four she was addicted to the excessive use of morphine and alcoholic liquors. The exact date of the onset of the psychosis and the character of its early symptoms are unknown. At the time of her admission she was thirty-four years of age, and the disease had already reached the stage of profound dementia, with complete clouding of consciousness, greatly impaired memory for both recent and remote events, emotional deterioration and a considerable emotional irritability, pronounced limitation in the store of ideas and considerable incoherence and some increased psychomotor activity, and complete inability to care for herself. Physically, she presented Argyll-Robertson pupils, great ataxia, which necessitated confinement in bed, faulty speech, pronounced tremor of hands and of facial muscles, exaggeration of deep reflexes and considerable emaciation. Two months previous to her commitment she had a series of epileptiform attacks.

At the time of the first blood examination, which was made thirteen days after admission, the patient was still showing some psychomotor activity, confined mostly to a purposeless fumbling with her clothing, sometimes tearing or removing it, and incessant talking in a loud voice, but this gradually disappeared by the end of the first month of her residence.

At this time there suddenly developed a paralysis of the left arm, unaccompanied by other phenomena. From this time the activity began to diminish. In the fourth month her mind had become a complete blank, acute decubitus appeared and the terminal phalanges of the paralyzed left hand sloughed off. From this time paresis of all the muscles became more marked, acute decubitus advanced, and she died three months later, at no



time showing a rise of temperature. The weight could not be taken in this case. Post-mortem examination corroborated the diagnosis.

The examinations of the blood were made bi-monthly in this case, and show in reference to the percentage of hæmoglobin that it averaged low, especially during the last month of the disease (68%). Previous to this it reached 90% only on two occasions. The estimation of the erythrocytes showed a normal and high normal count, except for the first and next to the last examinations, when it fell to 4,200,000. During the second and third months previous to death it varied between 5,150,000 and 5,666,000, but during the terminal month it fell below 5,000,000, was lowest thirteen days before death and then rose to about 4,700,000 four hours previous to her death. The leucocytes remained below normal during the first three months, except on two occasions, when there was a very moderate leucocytosis (9,733 and 10,666). Thence for one and a half months it was high normal, and then for one week there appeared a leucocytosis of 14,000. It then dropped to normal and low normal, except on the 27th day before death and four hours before death, when it reached 10,100 in the former and 14,600 in the latter. In the differential count the polymorphonuclear leucocytes were constantly above normal and in the final leucocytosis reached 94.2%.

Case 5. This patient, a man with very good family and personal history, developed his psychosis at the age of thirty-five. It was of gradual onset and characterized by a progressive deterioration in memory and judgment. Within a month he began to express numerous grandiose delusions and showed considerable increase in activity, busying himself over visionary schemes; at the same time he also suffered from a few hallucinations. This condition of expansiveness had entirely disappeared by the time he was admitted to the hospital in the twelfth month of the disease. Physically, he had suffered from chronic diarrhœa, had lost greatly in weight, and there was a general loss of muscular tone with impairment of coordination in the lower limbs, and faulty speech. Two weeks previous to his admission he suffered from a series of epileptiform convulsions, followed by transitory paresis in the left arm, and mentally by great clouding of consciousness and extreme activity, simulating the occupation delirium of senile dementia. This condition still persisted at the time of his admission. He was emaciated, insomnia was marked, the deep reflexes were abolished, the pupils did not react to light, and ataxia was marked. Dementia was profound.

At the time of the first blood examination in the fourteenth month of the disease, the restlessness had somewhat subsided, but deterioration had advanced and emaciation had become still more prominent. He was, however, very loquacious, continually jabbering away in incoherent sentences, mostly in reference to deeds of his early life. In the fifteenth month the activity began gradually to increase, and the patient became destructive, filthy and very noisy. By the third week the excitement had become extreme and continued so for one week, when the patient developed epileptiform attacks, which assumed the form of an epileptic status and lasted for twenty-four hours, followed by a semi-comatose state, which terminated fatally eight days later. During the five months' residence in the hospital the patient gradually fell in weight from 123 to about 85 pounds. The temperature



was not taken during this final illness, but apparently was normal. An autopsy revealed the characteristic lesions of paresis.

In studying the condition of the blood, which was examined weekly until the final ten days, when four counts were made, we find that the haemoglobin did not show any great variation. During the period in which the motor excitement had subsided, it rose to 90% on three occasions, but from that time on it remained pretty constantly about 85%, with one exception, which was the day following the epileptic status, and then it fell to 76%. The erythrocytes remained about normal until the final excitement, when they gradually rose until the day following the convulsions, then fell to normal, but four days later, which was three days previous to death, they had reached 6,333,000. The leucocytes remained below normal until the appearance of the great excitement preceding the convulsions, when a leucocytosis appeared. This reached 17,200 the day following the convulsion, but had dropped to 14,200, three days before death. We find among the different forms of leucocytes present that the polymorphonuclear variety was always above 79%, and during the terminal leucocytosis reached 93.4%.

Case 6. The patient developed her psychosis at the age of forty-one years. Her family history is without interest except that one sister died of apoplexy at forty-six. Specific disease is absolutely denied. There is a history of moderate intemperance, but privation and abuse were given as the "assigned cause."

The onset of the psychosis was gradual and characterized by despondency, delusions of self-accusation and fear, but further than this the nature of her psychosis was unknown until her admission to the hospital one year later. At this time she was profoundly despondent, showing great apprehension and expressing fear of death. She was greatly agitated and lamented loudly, condemning herself for her great wickedness, claiming that she was eternally lost, that her bowels did not move, and that she was completely clogged up with feces, etc. She feared being murdered or buried alive, and constantly wrung her hands in her distress, and begged for mercy. In fact the clinical picture was that of the so-called "agitated melancholia." Physically, she presented marked emaciation, anorexia, and constipation, but none of the characteristic physical symptoms of dementia paralytica. In the fifteenth month of the disease she began to improve rapidly and in the course of one and a half months had apparently recovered, in this time having gained ten pounds in weight.

During the succeeding twenty-five months the patient seemed quite normal, except that she exhibited a greater tendency to indulge in alcoholic excesses.

The disease gradually reappeared at the age of forty-three. She began to neglect her household duties and her own personal appearance, would serve her meals uncooked, stole money from her husband and spent it for liquor, attempted to travel away from home without money, and at times was threatening. Consciousness was not clouded, no delusions were expressed, and the friends had not detected any failure of memory. Upon admission to the hospital three months from the onset, it was found that she had already greatly deteriorated, especially in memory and judgment.

Many absurd and extremely grandiose delusions were expressed. There was marked emotional deterioration, while her volitional condition exhibited stupor, relieved at times by some pressure of activity, volubility, and a feeling of well-being, with impulsive violence. Physically, she presented an absence of tendon reflexes, pupils that were unequal and refused to react to light, faulty articulation, considerable muscular tremor, some ataxia, and general lack of muscular tone. In the fifth and sixth months dementia had gradually advanced, while the stupor and occasional excitement had disappeared. In the seventh month stupor with negativism appeared. She refused food, resisted everything, and displayed no voluntary activity. At first prodding would elicit a few incoherent voluntary remarks, but she soon became absolutely mute. The stupor increased, the loss of weight and general paresis became marked, and death occurred in the sixth week of the stupor. The temperature was slightly subnormal during the last week and at the time of the final blood examination on the day of death was 98.4 deg. in the axilla. A permission for a post-mortem examination could not be secured.

The blood examinations in this case were confined to the period of final stupor. The first examination was made in the second week of the stupor, at a time when the state had not become very profound, and the last about ten hours before death, the counts being made at weekly intervals.

In the five examinations there was a rapid diminution of the percentage of the haemoglobin from 85 to 60% for the first four, and then a final rise to 65%, the same change occurred in the count of the erythrocytes which dropped from 5,488,000 to 3,711,000, and in the final week rose to 4,484,000. On the other hand the leucocytes were below normal for the first two weeks and then showed an increasing leucocytosis, which reached 25,000 the day of her death. Throughout the whole period the increase in the number of leucocytes was largely represented by an increase of the polymorphonuclear leucocytes which never fell below 82%.

Case 7. This patient is a well developed man fifty-six years of age with excellent family history. Specific disease at the age of thirty-one was admitted by the patient. He had always throughout manhood been a moderate drinker. His occupation as an expert accountant had never caused excessive mental strain. This position he held for a number of years until the onset of his psychosis at fifty-four.

The disease appeared gradually. At first it was noticed that the patient began to drink to excess, which interfered with his regular employment. He then became drowsy and heavy, and slept a great deal of the time. Details of his work were overlooked and he showed great irritability and impatience in dealing with his assistants. Morally, he lost his sense of propriety and was occasionally obscene. Under the influence of rest and total abstinence he gradually improved from the sixth to ninth month, and from the ninth to seventeenth months seemed "nearly well" and "perfectly natural" except that he was appreciative of his parents' kindness and attended church, which was quite foreign to his nature.

In the seventeenth month, following exposure and over-work on the farm, he began to express delusions of grandeur and show some psychomotor rest-

lessness, which with great irritability made his confinement in an institution necessary seven weeks later. At this time he presented some time disorientation, slight incoherence in his train of thought, impairment of memory especially as to the time of occurrence of events, many changing delusions of grandeur of the most florid type, involving every sphere of life; literature, art, finance, engineering, etc. There was also a pronounced feeling of well-being with considerable emotional irritability and lack of moral feelings. His pressure of activity was confined mostly to an intense busyness, writing important letters, sending telegrams, making extensive drawings and models for machinery, talking volubly to fellow patients, laughing loudly, singing and dancing. Physically, there were exaggerated tendon reflexes, Argyll Robertson pupils, muscular tremor, especially of facial muscles, incoordination and greatly impaired articulation. This condition of excitement greatly increased, and at the time of his first blood examination, one month later was extreme. He was destructive of clothing, filthy, very noisy and profane, consciousness was clouded and speech more flighty. His sleep was greatly disturbed and he had lost nineteen pounds in weight. The excitement began to abate in the second and third months, so that it was possible to keep him clothed. Suddenly the patient developed a stuporous condition over night. In the morning his consciousness was found to be greatly clouded, memory was much impaired, he was silent and only fragments of his former grandiose ideas could be obtained by direct questions; emotionally, the elation had been replaced by indifference, and his activity had mostly disappeared. Physically, muscular exhaustion with increased tremor and incoordination had appeared, the countenance had become ashen and sunken. This stupor increased and death occurred thirty-six hours later, in the twenty-third month of the disease. During the week previous to the appearance of the stupor his weight fell eight pounds. The temperature was slightly subnormal during the stupor.

Consent for post-mortem examination could not be obtained so the diagnosis could not be verified.

The examination of the blood, which consisted of bi-weekly examinations, shows the hæmoglobin to have remained subnormal until the day previous to the appearance of the stupor, when it rose to 105%. The erythrocytes were subnormal at the time of the first examination, but had increased 1,000,000 by the second examination, then they steadily fell with the slight abatement of the excitement until the day before the stupor, when with the hæmoglobin they rose to 5,088,000. The leucocytes were subnormal until the last examination when they rose over 3,000, producing a slight leucocytosis. In this elevation the polymorphonuclear leucocytes jumped up about 20% with a corresponding drop in the small lymphocytes, which had been 37.2% and 39%, but with this exception the character of the leucocytes had been normal.

This case is of greatest interest because it shows the tendency to an abrupt rise in all three elements of the blood one day preceding the appearance of the fatal stupor.

Case 8. This patient was a well-developed, well nourished male forty-six years of age at the time of the onset of his disease. His hereditary endow-

ment was somewhat impaired, as one sister had suffered from "fits" and recovered, and his mother had died of apoplexy. The patient himself had always been a steady and hard worker. He drank to excess from early manhood to forty two, and especially from forty-one to forty-two, but from this time was temperate. Specific disease was positively denied.

The onset of his psychosis was very gradual. At forty-six he began to "fail in health," to lose in weight and suffer from malaise; but it was not until seven months later that mental symptoms appeared, at which time he neglected his work, became loquacious and displayed a moderate feeling of well-being. A few somatic delusions were expressed, such as that he had revolving wheels in his head, which he feared would wear through the cranium and cause death, and his memory for recent events was impaired. He was admitted to the hospital three months later, when he was partially disoriented and showed marked impairment of memory, some feeling of well-being, and motor restlessness (walking and talking much of the time). Physically, he presented ataxia, general muscular tremor, faulty speech, Argyll-Robertson pupils, exaggerated reflexes, and impaired nutrition. In the course of two months the restlessness and loquacity disappeared, consciousness cleared, somatic delusions vanished and nutrition improved. Constant hallucinations of hearing, however, appeared, with delusions of infidelity and of reference, which made him despondent. While mostly despondent and often weeping because of his wife's infidelity, he could easily be made to laugh and in a few moments would seem to have entirely forgotten his troubles. It was at this time that the blood examinations were begun. He was orderly in conduct and an excellent helper on the ward.

His mental condition remained unchanged during the succeeding six months. The hallucinations of hearing continued and caused him much anxiety in reference to his wife. Latterly, his thoughts seemed to center about sexual matters; women called him at night, etc. During this latter period he suffered from insomnia and terrifying dreams and steadily lost in weight. The physical symptoms had not advanced. Without warning he suddenly became greatly agitated, reacted to numerous hallucinations of hearing, assaulted fellow patients and attendants, resented his confinement, removed his clothing without purpose, and exhibited great motor restlessness. Consciousness remained clear. He talked incessantly of his past life and recent ward happenings. His attention could be attracted only for very short intervals. Food was refused and sleep completely abolished. At the end of the fourteenth day the patient became comatose and died forty-eight hours later.

During the quiescent period, the weight gradually fell fourteen pounds, and during the final period of excitement dropped thirty-six pounds. The temperature was not taken, but from all external indications was normal.

A study of the tabulated record of the blood examinations shows that the erythrocytes throughout the period of quiescence extending from the 12th to the 18th months, with few exceptions remained constantly normal and high normal. During the eight weeks previous to the terminal excitement there had been a gradual rise for seven weeks and then an abrupt drop of



900,000. In this same period the hæmoglobin at first averaged about 89%, when it fell and averaged during the last thirteen weeks about 82%. The leucocytes at first continued about normal but during the last thirteen weeks of this period fell to low normal and sometimes even to 5,000. The week previous to the exacerbation a leucocytosis appeared. In the differential estimation of the leucocytes, we find that the polymorphonuclear leucocytes were always in excess of the normal per cent by 10-15 points while the small lymphocytes presented a continuous lymphocythæmia. The large lymphocytes were continually below normal during the latter part of this period.

The final period of the disease, that of the excitement, presents a marked change. In the first place there was a progressive increase in the number of the erythrocytes after the second week, reaching eight hours before death 7,551,000; the hæmoglobin showed a corresponding rise to 110%. The leucocytes from the week preceding the exacerbation began to increase, and in the final count reached 27,000. The increase occurred entirely in the polymorphonuclear variety, which at the end averaged 91.6%.

The post-mortem observations in the case verified the diagnosis of general paresis, and failed to reveal any cause for the leucocytosis.

Case 9. This patient, a man forty-three years of age, had syphilis at the age of seventeen, had been addicted to the excessive use of liquor, often to intoxication, and had led a strenuous army life until forty-three, serving in several British campaigns.

The onset of his disease occurred at forty-three, six months previous to his admission to the hospital. He began to drink to greater excess, and when under its influence became violent. His work was abandoned while he spent his time loafing about the neighborhood, writing letters to women, and making proposals of marriage. He presented a feeling of well-being, and in a short time expansive delusions appeared. He was shiftless and careless, and upon two occasions set the house on fire with ashes from his pipe, but on neither occasion made any effort to extinguish the flames. At the time of his admission he was still expansive, and had a feeling of well-being. Deterioration was evident from his impaired memory and judgment and lack of emotional reaction. There was no increased activity and consciousness was clear. Physically, the pupils were unequal and irresponsive to light, tendon reflexes were absent, and there was faulty speech, general muscular tremor, moderate ataxia and greatly disturbed speech. From the eighth to tenth months the expansiveness and feeling of well-being gradually disappeared, while the irritability increased, leading to occasional outbursts of passion with destructiveness. The patient became perfectly indolent and quite indifferent to his environment. In the tenth month he suffered from his first epileptiform attack, preceded for a couple of days by tabetic pains in his legs, and followed by great restlessness and violent aggressiveness. During the following five months periods of composure with insight and fear of impending death, alternated with periods of restlessness, irritability, and threatening and violent behavior. In the thirteenth month the second paralytic seizure occurred, preceded by five days of excitement and followed by composure. During the sixteenth to twenty-

first months he had a partial remission, with an improvement in memory, emotional attitude and conduct.

The first blood examination was made during this remission, but the second examination was not made until the termination of the remission with a stupor in the twenty-first month. The examination was made on the second day of the stupor, when the patient was completely clouded, experiencing hallucinations of sight, incoherence of thought and slight restlessness. On the same day an epileptoid spasm of the clonic form appeared, involving only the right upper and lower limbs, followed by hemi-paresis of this side lasting some days. The stupor disappeared in the course of five days, but mental deterioration had advanced, and the patient presented greater languor, indifference, and irritability, but for the three succeeding months he showed considerable gradual improvement. Dazedness again suddenly appeared in the twenty-fourth month, with evident hemi-paresis of the left side, from which he never fully recovered. He remained semi-stuporous for two months, was thoroughly disoriented and memory for all of the events of his life was greatly impaired. During this time he suffered from an epileptiform attack involving the left side and followed by a partial paralysis of this side. The convulsive twitchings lasted several days. The quiescent stage followed from the twenty-sixth to the twenty-ninth months. Another and exactly similar seizure to the above involving the left side and producing paresis, occurred in the twenty-ninth month. The twitching continued for four days.

Two weeks later a slight clonic seizure occurred involving the left side. Three days following this the patient developed a comatose state, with twitching of the right hand, weakened pulse and febrile temperature, appearance of broncho-pneumonia on the ninth day, and death on the eleventh day.

The post-mortem examination disclosed the anatomical lesions characteristic of dementia paralytica, and also broncho-pneumonia.

The study of the blood in this case began during the remission between the sixteenth and twenty-first months. At that time there was a moderate leucocytosis, and a high erythrocyte count. The second examination was made on the second day of the stupor which followed the remission, and from this time examinations were made weekly until death. Six hours previous to the second examination, the patient developed an epileptoid attack which lasted ten hours. Throughout this stupor the erythrocytes remained a high normal, with hæmoglobin varying between 85 and 95%; the leucocytes showed a leucocytosis 11,000-20,000, which reached its height in the second week. During the following ten weeks, while dementia was gradually progressing, the hæmoglobin remained high, for three weeks being above 100%, but during the last two weeks falling below 75%. The erythrocytes continued high, and upon two occasions passing the six millions mark. The leucocytes fell abruptly to below normal, then rose slightly, in the third, fourth, fifth and sixth weeks, maintaining a slight leucocytosis, and again in the eighth week reached 10,300. In the tenth week, on the day when the condition of dazedness suddenly appeared, accompanied by hemi-paresis, the leucocytes reached only 9,500.

From this time until three weeks previous to death, while the mental condition did not change greatly, the progress of the disease was marked, however, by paralytic attacks. The hæmoglobin averaged 80%, upon one occasion reaching 65%, the erythrocytes remained about 5,000,000 until during the final eleven weeks, when they averaged about 4,700,000 except upon one occasion when they rose to 5,546,000 and fell back again the next week without apparent reason. During the final comatose state of two weeks, the erythrocytes fell to 4,131,000, and on the day before death to 3,600,000.

The leucocytes during the period from the twenty-third to twenty-ninth months, were mostly below normal, except near paralytic attacks. The week following the attack in the twenty-third month they reached about 10,500. They were then subnormal until the next attack, which lasted three days. The count was made on the day following the onset and showed a leucocytosis which continued into the next week. Four and five weeks later a leucocytosis appeared without any evident change of the mental symptoms. Likewise five weeks later, and also seven and eight weeks later a slight rise above normal occurred. The next rise occurred thirteen hours preceding an attack, and again three weeks later a moderate leucocytosis accompanied another attack. In the coma which followed this attack and led to death, the leucocytosis was 13,700, and one week later, the day previous to death 10,700. In the differential count we find that during the periods of leucocytosis throughout the disease, the polymorphonuclear leucocytes predominated in percentages varying from 60.6 to 90.4%, but upon only two occasions being below 70%. His weight charts show a gradual fall from the twenty-third month and during the last two weeks a loss of over ten pounds.

His temperature at the time of the blood counts did not vary over a degree from normal except that during his final illness when it remained subfebrile, except at the final count, when it was 105 deg., ten hours after developing broncho-pneumonia.

Case 10. This patient's father died during senility. The patient himself had always been a man of excellent health, occasionally drank for the sake of sociability, had had gonorrhœa, but not syphilis.

The onset of the psychosis was gradual at the age of thirty-five, with a pronounced change of character, the patient becoming irritable, very forgetful, and at times dazed. Within a month of the onset he had a paralytic attack of a few hours duration and following this the memory was more impaired, and he seemed restless and uneasy, and could not apply himself to his work. He would fly into a passion over trifles, leave home, declaring that he would not return, but would reappear within half an hour, having entirely forgotten the incident. His memory and judgment had so far deteriorated by the tenth month that he was not only incapable of doing any work, but would get lost in his own city. At this time he began to express delusions of grandeur, and to exhibit a feeling of well-being.

He was admitted to the institution in the twelfth month of the disease, with profound deterioration in both memory and judgment, clouded consciousness, extremely expansive delusions and a marked feeling of well-being. He was busy in planning various grandiose business ventures, and had no thought or feeling for his family. Physically, he presented an



absence of knee jerks, Argyll-Robertson pupils, incoordination of lower extremities, faulty articulation, general muscular tremor, absence of facial expression, and impaired nutrition.

During the first month after admission, the patient showed some improvement; his consciousness became clear, the expansive delusions were less prominent, and the feeling of well-being was replaced by some emotional indifference. He, however, became interested in his environment, and was an excellent, energetic ward helper. His memory and judgment did not improve. Physically, his state of nutrition improved greatly, and his weight rose seventeen pounds. There was no further change in his condition from the thirteenth to the twenty-third months. The blood examinations had been begun during the quiescent period.

In the twenty-third month, the patient gradually developed a condition of stupor; he lost his former interest, stood about in one place unobservant, seemed unable to comprehend questions and answered very slowly, giving evidence of difficulty of thought. All the delusions had disappeared and he expressed some insight into his condition. He was confined in bed. In seven days his stupor had deepened so that he did not respond at all to questions, and had to be fed by spoon. His weight continued to fall rapidly and his countenance became ashen. On the fourth day his temperature rose to 104 deg. then fell to subnormal for two days, and from that time continued to show a slight afternoon rise to about 99.6 deg. The stupor became more profound, and he died on the fourteenth day. In the two weeks his weight had fallen from 151 to 107 pounds.

In reviewing the blood charts of weekly counts which began during the quiescent stage at the seventeenth and a half month of the disease, we find that the hemoglobin remained constantly low throughout this period. Upon three occasions it rose above 90% once to 93% and fell as low as 74%, its average, however, was 84%. During the seventeenth and eighteenth months it varied between 87 and 93%, while during the final two months it varied between 88 and 74%. During the period of stupor it fell at first to 65% and then rose gradually to 90% at the final count—four days before death.

The erythrocytes during the period of quiescence remained mostly normal, three times they rose above five and a half millions, and once to 5,871,000, until they fell with the hemoglobin and from that time until the final stupor, remained below five millions, once reaching four and a half millions. During the stupor they gradually rose from four and a half to six and a half millions.

The leucocytes similarly with the erythrocytes remained about normal, with one exception, when they rose to and over 10,000, then fell and were subnormal, averaging about 5,000. During the first part of the stupor, while it was still not profound, they rose gradually to normal, and then passed into a state of leucocytosis.

In reference to the relation maintained by the different forms of leucocytes, we find that the polymorphonuclear leucocytes were about normal until the appearance of the leucocytosis, when they rose to 80.4 and 86.2%.

During the final stupor there was a pronounced lymphopenia, while the large lymphocytes remained at the same percentage.



The autopsy in this case substantiated the diagnosis of dementia paralytica.

Case 11. This patient developed dementia paralytica at the age of thirty-six, but did not come under our care until one and a half years later.

In this case the family history was negative. The patient himself had been an alcoholic, had indulged in sexual excesses and had had syphilis at the age of twenty-three. While a soldier in the regular army and serving in Cuba, he drank to greater excess, was ill for five weeks from some fever, and also suffered from sunstroke. He deserted after a short service and about this time gave the first evidence of mental disease, indicated by a change of character. He was unemployed, tramped about the country, and was several times imprisoned for vagrancy. The memory of this period is very indistinct. He finally reached home by the aid of civic authorities and was immediately sent to the hospital. At this time he presented as evidences of the disease, an impairment of memory, some clouding of consciousness, emotional deterioration, and increased motor activity and restlessness, in which there seemed to be no purpose, such as removing his clothing and putting it on again, and an extremely limited content of thought which showed frequent repetitions and centered entirely about his war experiences. Physically, he presented a very pronounced choreiform condition which simulated very closely advanced Huntington's chorea also, exaggerated deep reflexes, tremor of the muscles of the face, tongue, and hands, incoordination of the limbs and facial muscles, and a moderately defective speech (hesitating, explosive, and slurring). In reading there was an elision and an occasional translation of syllables. He was also poorly nourished. The choreiform movements greatly interfered with the early hours of sleep.

The patient was in this same condition at the time that the blood examinations were begun, which was in the twentieth month of the disease, one and a half months after admission. His condition did not change until the latter part of the twenty-third month, when he would become dazed for a few hours at a time. While in this state he was completely clouded, and would fail to respond to the dinner call. He in three weeks passed gradually into a stuporous state. In this he lost his activity, lay quietly in bed, never speaking or in any way caring for himself, in fact seemed unable to comprehend what was said to him. The duration of this stupor was from February 19th to April 14th, when he emerged from the condition during a night. The next morning he was active and interested, asked for work and talked freely of his war experiences. There was no motor restlessness. His condition of deterioration had apparently not advanced during the stupor, while the choreiform condition had greatly improved and was now confined entirely to the muscles of the face.

A condition of stupor, similar in every respect to the former one, came over him suddenly on June 30th, ten weeks later. On the morning of the tenth day, he seemed somewhat improved, as he voluntarily went to the bath room; a few minutes later he fell in a convulsion, and expired in three minutes.

The post-mortem examination in this case substantiated the diagnosis of dementia paralytica.

In this case the blood examinations were begun during a condition of moderate parietic excitement which persisted until the gradual appearance of a stuporous state in the twenty-third month. During the first three months only four examinations were made. Following this for three months they were made weekly and during the last two months, bi-weekly. During the first three months the hæmoglobin varied between 70 and 95%, the erythrocytes were normal with one exception, when they fell to 4,511,000 and the leucocytes were low normal and subnormal. During the stupor of two months duration, the hæmoglobin varied from 65-85%, the erythrocytes increased from subnormal to above normal, and then fell to normal, the leucocytes averaged low normal. In the period of two weeks intermission, the hæmoglobin varied from 68 to 80%, the erythrocytes remained normal and the leucocytes averaged normal. No blood count was made during the eleven days previous to the onset of the second stupor, and the final examination was made six days before death. This examination revealed a normal count, with the exception of the low hæmoglobin and the high percentage of polymorphonuclear leucocytes—(77.8%).

The clearly defined periods of stupor are not indicated by a definite blood change. The weight, on the other hand shows a progressive drop from the time of the first examination to the time of death, a loss aggregating forty-four pounds.

#### TECHNIQUE.

The blood has been drawn from the finger, preferably a middle finger, precautions being taken to avoid the application of friction and pressure. The hæmoglobin has been uniformly estimated with a Fleischl's hæmometer, attention being paid that all excess of blood is carefully wiped from the end of the capillary tube. The erythrocytes have been counted with a Thoma-Zeiss hæmometer, the same pipette being used for practically all of the work. In using Gower's solution, making a dilution of 1:200 an attempt has always been made to place the cover slip over the Zappert counting chamber as rapidly as possible after placing the blood in the chamber. Two large squares in each of two drops and one in the third drop, preferably squares near the periphery, have been counted in making the estimation. Wherever there was great variation another drop has been counted, and the three counts nearest each other selected in making the aggregate.

In counting the leucocytes acetic acid solution with a dilution of 1.20 has been uniformly employed. Three fields of four

hundred squares each have been counted in each case, and if there was a great variation an additional field was counted.

As regards the personal equation, the greatest part of the work has been done by a single observer. The work was begun by Mr. Burr, laboratory technician, in the spring of 1901, (30 counts) continued by Mr. Stone, medical interne (60 counts) and completed by Mr. Ward, technician, all of whom had had considerable experience in blood work. Besides this parallel counts were made to determine the presence of any error due to personal equation.

In reference to the condition of the patient, every precaution was taken to have the work uniform. In most cases the examinations were made weekly, occasionally bi-weekly. They were made at the same time of the day, either two hours after breakfast or an hour and a half after dinner, and on the same day of the week. As all patients were on a uniform diet digestion leucocytosis was eliminated in this way.

In enumerating the different forms of leucocytes five hundred cells were counted.

#### HÆMOGLOBIN.

In interpreting the results of our observations, the standards established by Reinert in his extended series of observations upon normal individuals have been followed. The results of Reinert have been confirmed in great part by Mr. Ward, who also made a series of twenty-four hour counts upon normal individuals. In order to ascertain if daily pathological variations occurred in the parietic, a similar series of twenty-four hour counts was made by him in one of the patients.

In all of the eleven cases, the observations were necessarily confined to a period of the disease in which the disease process was already well established.

The hæmoglobin in all cases showed a moderate anemia, which became more marked, but never profound (below 65%) as the disease advanced. In cases where the hæmoglobin was below 80% at the time of the first examination, it did not subsequently vary much.

During the terminal state the average percentage of hæmoglobin in all but three of ten cases (Nos. 4, 5 and 10) was from 3-26% higher than during the period just preceding. Of the

three cases in which the rise in hæmoglobin was not coincident with the onset of the terminal state, there is in one a rise in the last four weeks from 65-70%, in another during the last three weeks, a rise from 65-90% and in the third case a rise in the last week (two counts) from 76-86%. The only exception to the increase of the percentage of hæmoglobin in the terminal state is found in No. 6 in which the blood was examined only during this period. In this case there was a progressive drop in four weekly counts from 85-60%.

In reference to the relationship between the condition of nutrition and the percentage of hæmoglobin, four of the eleven cases were well nourished throughout the period of examination until just preceding and during the terminal state, and seven were poorly nourished. The hæmoglobin in the well nourished cases averaged only 4% higher than in the poorly nourished—78 and 82%. In two of the well-nourished cases the hæmoglobin reached 100% and plus three times in one and once in another case, and three times in one of the poorly nourished patients.

The hæmoglobin during the various paretic states of quiescence, of excitement and stupor, not terminal, presents no constant change, characteristic either of different states in the same individual or of similar states in different individuals. There was no increase in the percentage of hæmoglobin during the quiescent period, when nutrition regularly improved.

#### ERYTHROCYTES

The erythrocytes in eight cases in which the examinations extended over many months averaged normal in all, while in the two cases (3 and 4) in which the examinations were made only during a short period previous to death the average was low normal, but in no case was there an average subnormal count. Occasionally the cells sank to low normal, but in only five instances did they fall to subnormal; in one case once, in one case twice, and in one case three times. In the last two of these cases, it occurred at the very end of the disease.

In all cases the erythrocytes showed a tendency to sink during the period just previous to the terminal state and then there occurred during the terminal state with only one exception a rise which is even more marked than that seen in the hæ-



moglobin during the same period. This rise varied from 5,000 to 3,000,000, and in four cases became a polycythæmia. This rise was exactly coincident with the beginning of the terminal state in only five of the ten cases.

The various paretic states, exclusive of the terminal state, namely, those of excitement, of stupor and quiescence, failed to exhibit any change in the erythrocytes. In the five cases of paretic excitement the count averaged normal in all but one, which was subnormal. In the two cases, with the greatest excitement, in one of which there were two periods of excitement the count averaged normal in one case, and in one period of the other and low normal in the other period. In the individual cases, the count during the period of excitement averaged the same in two cases and lower in one. In one of the two cases in which it was higher, the excitement occurred early in the disease, when the erythrocytes are naturally higher.

Stupor occurred twice in each of two cases. In three of these four stuporous states the count averaged normal, and in the other subnormal. In the individual cases the erythrocytes averaged higher during the period of stupor in one case, and lower in the other.

Periods of quiescence could be studied in eight cases, in one of which it occurred twice. In five of these periods the count averaged normal, in two low normal, in one high normal, and in one polycythæmia. In the individual cases the erythrocytes during the period of quiescence averaged about the same as during the other periods of the disease in three cases, lower in one case and higher in the fifth case. In the remaining three cases there were no other paretic states except the terminal with which to compare it.

As regards the relationship between the condition of nutrition and the number of erythrocytes, the gradual, though not marked diminution in the number of cells as the disease advanced, corresponded with the gradual loss of weight, except in the terminal state, when there was a tremendous loss of weight, but a considerable increase in the number of cells. In the three well-nourished cases (1, 8 and 10) the erythrocytes averaged only a very little higher than in the poorly-nourished cases.

In making the differential counts no qualitative changes of any moment were noted in any of the cases. Occasionally poikilocytosis and now and then a single normoblast or a myelocyte was found.

Paralytic attacks occurred in three cases. No appreciable change was observed in the erythrocytes near these times. In case 9 the count was made at the time of the first attack, about six hours after the seizure, at the second eighteen hours before, at the third twenty hours afterward, and at the fourth three days later. In case 1, the examination was not made until forty-eight hours after the attack. In case 5 the count was made a few hours after the termination of an epileptiform status of twenty-four hours duration.

#### LEUCOCYTES.

The study of the leucocytes does not show uniform results. In the cases in which the study extended over many months, the leucocytes presented a gradual fall in three cases, in three cases they were low at the time of the first examination and continued low, while in three cases they varied throughout the entire period. But in all of these nine cases just preceding, coincident with or following the onset of the terminal state there appears a rise in the number of the leucocytes, which in all but two reaches a leucocytosis. This leucocytosis varies from 10,700 to 27,000. In the two cases which did not reach a leucocytosis there is a rise in one of 1,000 and in the other of 3,000. In three cases the height of this leucocytosis occurs before the final examination; in case 9 there is a fall of 3,000 in the last four days; case 5, a fall of almost 3,000 in the last four days, and in case 1 a fall of 10,400 in the last five days. In the two cases in which the examinations are confined to the terminal state, there is in one a gradual rise from 6,300 to 25,000 and in the other a leucocytosis which rose from 10,000 to 14,000.

The parietic states of excitement, of stupor and quiescence, exclusive of the terminal states, did not present any characteristic change. In the four periods of stupor—two cases—there was a constant leucocytosis in one, an average normal count in two and a low normal in one, but in two of these periods a leucocytosis appeared transitorily. In six periods of excitement,

five cases, there was an average hypoleucocytosis in three, an average normal count in two and a leucocytosis in one. Besides this a leucocytosis appeared transitorily in one period of excitement. In the nine periods of quiescence—eight cases—an average normal count was present in four, a leucocytosis in one, a hypoleucocytosis in two, low normal in one, and a high normal in one, but in seven of these periods a moderate leucocytosis appeared temporarily.

The percentage of the different forms of leucocytes, shown by the differential counts, presents a striking abnormality. A uniform pathological increase of the polymorphonuclear variety occurred in ten of the eleven cases. In this one case, 7, the percentage of polymorphonuclear leucocytes remained within normal limits with two exceptions; once it fell to 53.8, and once it rose to 71.8%. This pathological increase became more pronounced and reached its climax, with one exception, during the terminal state. In case 2 the highest point is touched during a stage of excitement some months previous to the terminal state, but the average highest percentage occurred during the terminal state.

Plasma cells were carefully looked for in the differential counts, but never encountered. This observation is of importance because of the prominent rôle played by these cells in the vascular changes in the brain, which has come to be regarded as a pathognomonic condition.

The opportunity for observing the condition of the leucocytes near paralytic attacks was limited, as in the eleven cases only six attacks occurred; four in case 9 and one each in cases 1 and 5. In case 1, in which the count made two days after the attack, was 8,300, is practically of no value. In case 5, the count made a few hours after the termination of an epileptiform status of twenty-four hours duration was 17,200. This was in the terminal state and five days later, three days before death the count had dropped 3,000. In case 9 a count was made six hours after the first attack, and showed a leucocytosis of 14,000. One week later the count was 19,000 without any apparent reason except that the patient was still in stupor. The count was made in the second attack twenty-four hours later, and showed a leucocytosis of 13,900, which was a rise of over 7,000 above the average of the preceding weeks. Two days later the count

was 14,600. In the third attack the count made eighteen hours before was 10,300, while for the two previous examinations it was under 7,000, and the two subsequent examinations under 8,500. In the count made three days following the fourth attack, which was during the terminal state, the leucocytosis reached only 10,000 which was a rise of 2,000 over the previous count.

In reviewing the blood changes observed in the hæmoglobin and erythrocytes, there are only two conditions requiring special comment—the progressive moderate anemia, and the tendency to a polycythemia and an increase in the percentage of the hæmoglobin and in the terminal state. The anemia which is more apparent in the hæmoglobin than in the red cells is similar to that which accompanies chronic diseases; as, chronic nephritis, cirrhosis of the liver and syphilis, except that it is less pronounced. It is in accord with the progressive atrophy of the nervous system accompanied by a gradual and complete loss of function, as well as atrophy and arterio-sclerotic changes occurring in the internal organs. The tendency for this anemia to disappear and to be replaced in the terminal state by a progressive increase in both elements which in some cases passed the normal limits does not as far as recorded<sup>9</sup> find its counterpart in other diseases and is more difficult of explanation. The most rational explanation would be that it was due to a concentration of the blood dependent upon a lack of ingestion of fluids and food during the terminal period. This did occur in the paretics during the latter part of the terminal period, and in some cases the abstinence was complete during the last few days.

In order to determine the importance of this factor several moribund cases suffering from inanition were studied. In six such cases in which the examination was made from four to twenty-seven hours ante-mortem, and in which there was an absence of the ingestion of food and water, as well as an absence of temperature or demonstrable inflammatory condition, the hæmoglobin was found to be low in all cases except one (93%). The erythrocytes in these cases were within normal limits except in this one case in which they reached 6,155,000. Sluggish circulation was evident in the moribund cases as well as in the moribund paretics, by the slow flow of the blood and



by the appearance of an extremely dark colored drop at the point of puncture. Judging from these facts one feels safe in the assumption that the high percentage of hæmoglobin and the tendency of a polycythemia of the terminal paretic state is not due to concentration of the blood dependent upon lack of ingestion of food and fluids, or to the weakened heart's action and sluggish circulation. Furthermore, this condition of the paretic blood was in the majority of cases coincident with the onset of the terminal state and was in existence some days or weeks before the moribund state appeared.

The two pathological conditions observed in the leucocytes which merit comment, are the appearance of a terminal leucocytosis coincident or nearly so with the terminal mental state and the presence of a leucocytosis accompanying paretic attacks of an epileptiform nature. In considering the terminal leucocytosis one must eliminate the presence of any inflammatory conditions which might give rise to it. In case 9 broncho-pneumonia appeared two days before death, The final count was taken ten hours later and showed a fall in the leucocytes from 13,700 to 10,700. With this exception there was no physical sign of any inflammatory process in the five cases not examined post-mortem, and no pathologic evidence of it in the six cases in which an autopsy was performed.

This leucocytosis should not be confounded with the moribund leucocytosis mentioned by Cabot and other writers, as it appears some time before the moribund state. In accord with their statements, it might be added that our six moribund cases, examined from four to twenty-seven hours ante-mortem, showed a leucocytosis varying from 13,000 to 17,000, being highest in the cases four and five hours ante-mortem. Moribund leucocytosis is believed to arise either from stasis or from terminal "intoxication." The former explanation cannot apply to prolonged terminal paretic leucocytosis as the sluggish circulation and weakened heart's action did not appear until just previous to death. The preponderance of experimental evidence goes to prove that leucocytosis should be regarded as a reaction to the presence of a chemical substance in the blood, the function of the leucocytosis being to remove these substances.

The only chronic non-febrile non-inflammatory disease process comparable with dementia paralytica, in which a terminal

leucocytosis has been observed, is chronic nephritis, terminating in uremia. In this disease Cabot found an absence of leucocytosis in the great majority of cases during the progress of the disease until the uremic state, when leucocytosis appeared in thirty-four of forty cases. This concurrence is most significant, not only in establishing the toxic origin of the terminal state and its leucocytosis, but also the toxic origin of the disease.

The presence of the leucocytosis accompanying paralytic attacks has already been established by Capps. Our limited observations on this matter simply bring additional evidence. In explanation of this phenomenon here again the only recourse is to the toxic theory. The only disease presenting symptoms comparable with the paralytic attacks of dementia paralytica is idiopathic epilepsy. The blood conditions in this disease have been studied by Kroubmiller and Pugh. Kroubmiller<sup>10</sup> studied twelve cases and claims that at the time of the attack the total quantity of leucocytes is increased and that the increase diminished with every new attack. It is highest one hour after the attack. This increase is due to the relative and absolute increase in the lymphocytes with a relative decrease of the other cells. Pugh<sup>11</sup> studied twenty cases of idiopathic epilepsy. His observations were confined to a single examination from one to twenty-four hours after the concurrence of one or more convulsions in seventeen of the cases and in three cases an examination also in the interparoxysmal period. He found that a leucocytosis occurred following seizures, which diminished with each convulsion following the first and was less marked in epileptic status. In this leucocytosis there was an increase in the small and large lymphocytes and a diminution of the polymorphonuclear variety.

These observations in epilepsy, which are in accord with the results of Capps and our own in dementia paralytica, add further weight to the toxic theory of the origin of this disease.

The question naturally arises, if this theory be true, why are not the states of paretic excitement and stupor, which clinically seem to indicate an intensification of the toxic state accompanied by a leucocytosis. It is a recognized clinical fact that the paralytic attacks are regularly followed by greater mental impairment. The same is true of the excited and stuporous states at which times the disease usually makes greater inroads upon the

mentality of the patient. Furthermore, a similar condition appears to exist in the terminal state whether the outward manifestations are those of excitement, stupor, or simple inanition. The only explanation for the absence of a leucocytosis in the paretic excitement and paretic stupor, not terminal, is that the toxic state is not intense enough to produce it.

A further pathological change which occurs in striking uniformity is the increase of the polymorphonuclear variety of leucocytes throughout the course of the disease, for which we can offer no explanation.

The results of this systematic examination of the paretic blood corresponds with those obtained by earlier investigators in reference to the progressive anemia, but they controvert the observation of Smyth that there is a cessation of the progressive fall of hæmoglobin during periods of great exaltation. The recorded observations on the leucocytes have been: a diminution at the end (Macphail), a diminution in seven of fourteen cases (Jelliffe), a slight increase (Somers), a moderate leucocytosis except near the onset (Capps), and leucocytosis with the exalted state (Jelliffe). Our study does not accord with any of these views, though examinations made irregularly during the course of the disease in any of our cases might easily have brought results in accord with all of them, except those of Capps in reference to the leucocytosis accompanying paralytic attacks. The observation of Jelliffe that a leucocytosis accompanies exalted conditions is improbable, as it occurred in only one of six exalted periods.

#### CONCLUSIONS.

Dementia paralytica is accompanied by a moderate and progressive anemia, involving especially the hæmoglobin and becoming more marked as the disease progresses.

The terminal state of the disease is accompanied by a rise in the hæmoglobin, erythrocytes and a leucocytosis.

Paralytic attacks are accompanied by a leucocytosis.

Throughout the disease process there is a pathologic increase of polymorphonuclear leucocytes which reaches its height during the terminal state.

States of paretic excitement, stupor or quiescence, not terminal, are not accompanied by any characteristic blood changes.

The presence of a leucocytosis accompanying the terminal state and paralytic attacks is significant evidence in favor of the toxic origin of the disease.

I desire to express my appreciation of the painstaking work done by Messrs. Ward, Burr and Stone in making the blood counts, and particularly the valuable assistance given by Mr. H. C. Stone in compiling the statistics of the counts and in arranging the histories of the cases.



TABLE 1.—Case 1.

| Month of disease.  | Hamoglobin. | Erythrocytes. | Leucocytes. | Polymorphonuclear leucocytes. | Small lymphocytes. | Large lymphocytes. | Eosinophiles. | Weight. | Temperature.        | Stage of the disease. |
|--------------------|-------------|---------------|-------------|-------------------------------|--------------------|--------------------|---------------|---------|---------------------|-----------------------|
|                    | <i>p c</i>  |               |             | <i>p c</i>                    | <i>p c</i>         | <i>p c</i>         | <i>p c</i>    |         |                     |                       |
| 13th mo., 5th day. | 70          | 4,646,000     | 7,500       | 83.8                          | 10.9               | 4.4                | .9            | .....   | Normal              | Quiescent.            |
| 20th               | 84          | 4,964,000     | 8,800       | 84.6                          | 10.4               | 3.3                | 1.7           | .....   | "                   | "                     |
| 28th               | 70          | 4,275,000     | 9,000       | 80.7                          | 13.                | 3.7                | 2.6           | .....   | "                   | "                     |
| 14th mo., 5th day. | 68          | 3,828,000     | 6,000       | 74.9                          | 20.                | 3.3                | 1.9           | .....   | "                   | "                     |
| 12th               | 87          | 5,166,000     | 11,000      | 80.9                          | 12.7               | 5.3                | 1.2           | 151     | "                   | "                     |
| 24th               | 82          | 4,642,000     | 10,700      | 80.9                          | 14.3               | 3.8                | 1.            | .....   | "                   | "                     |
| 31st               | 86          | 5,495,000     | 8,600       | 79.2                          | 14.8               | 4.9                | 1.1           | 152     | "                   | "                     |
| 15th mo., 7th day. | 87          | 6,006,000     | 9,600       | 77.7                          | 15.5               | 5.7                | 1.1           | .....   | "                   | "                     |
| 14th               | 87          | 5,853,000     | 10,200      | 80.8                          | 12.2               | 6.2                | .8            | .....   | "                   | "                     |
| 21st               | 88          | 5,600,000     | 10,900      | 79.2                          | 14.6               | 5.0                | 1.2           | .....   | "                   | "                     |
| 29th               | 91          | 5,688,000     | 9,600       | 81.                           | 13.4               | 4.8                | .8            | 158     | "                   | "                     |
| 16th mo., 5th day. | 85          | 5,804,000     | 9,800       | 81.4                          | 13.6               | 3.8                | 1.2           | .....   | "                   | "                     |
| 11th               | 82          | 5,471,000     | 8,100       | 80.8                          | 14.2               | 3.2                | 1.8           | .....   | "                   | "                     |
| 19th               | 80          | 5,035,000     | 6,500       | 81.                           | 12.2               | 4.4                | 2.4           | 159     | "                   | "                     |
| 25th               | 82          | 5,706,000     | 7,600       | 79.                           | 13.4               | 6.2                | 2.4           | 157     | "                   | "                     |
| 17th mo., 2d day.  | 75          | 5,630,000     | 5,700       | 82.                           | 13.6               | 3.1                | 1.            | 157     | "                   | "                     |
| 9th                | 72          | 5,208,000     | 7,100       | 80.4                          | 12.4               | 5.4                | 1.8           | .....   | "                   | "                     |
| 16th               | 85          | 4,866,000     | 4,400       | 81.8                          | 13.6               | 3.6                | 1.            | 157     | "                   | "                     |
| 23d                | 83          | 5,413,000     | 5,100       | 81.8                          | 12.4               | 4.8                | 1.            | .....   | "                   | "                     |
| 30th               | 86          | 4,844,000     | 6,900       | 85.2                          | 11.                | 2.6                | 1.2           | .....   | "                   | "                     |
| 18th mo., 6th day. | 70          | 4,786,000     | 5,700       | 78.4                          | 15.6               | 3.2                | 2.8           | .....   | "                   | "                     |
| 13th               | 68          | 5,395,000     | 7,260       | 80.8                          | 14.6               | 3.4                | 1.2           | 158     | "                   | "                     |
| 20th               | 80          | 5,044,000     | 6,100       | 81.8                          | 15.6               | 1.8                | .8            | 160     | "                   | "                     |
| 27th               | 85          | 4,897,000     | 9,600       | 77.                           | 15.                | 5.3                | 2.8           | 160     | "                   | "                     |
| 19th mo., 4th day. | 95          | 5,466,000     | 9,000       | 74.                           | 17.6               | 3.2                | 5.2           | 160     | "                   | "                     |
| 11th               | 86          | 5,111,000     | 9,000       | 80.                           | 14.6               | 4.8                | 1.6           | 159     | "                   | "                     |
| 18th               | 91          | 5,266,000     | 8,700       | 75.                           | 18.4               | 2.8                | 3.8           | 155     | "                   | "                     |
| 25th               | 87          | 5,666,000     | 7,700       | 79.4                          | 15.2               | 3.2                | 2.2           | 155     | "                   | "                     |
| 31st               | 87          | 5,768,000     | 8,600       | 76.6                          | 20.4               | 2.                 | 1.            | 155     | "                   | "                     |
| 20th mo., 8th day. | 76          | 5,097,000     | 6,500       | 80.2                          | 14.                | 4.2                | 1.6           | 155     | "                   | "                     |
| 15th               | 82          | 5,555,000     | 7,300       | 70.6                          | 24.8               | 2.6                | 2.            | 154     | "                   | "                     |
| 22d                | 85          | 5,777,000     | 6,600       | 71.8                          | 23.6               | 3.4                | 1.2           | 153     | "                   | "                     |
| 29th               | 80          | 5,281,000     | 7,700       | 77.8                          | 17.6               | 3.8                | .8            | 154     | "                   | "                     |
| 21st mo., 5th day. | 100         | 5,266,000     | 8,300       | 80.4                          | 15.8               | 3.8                | .0            | 154     | "                   | "                     |
| 12th               | 88          | 5,288,000     | 9,500       | 80.                           | 16.4               | 2.4                | 1.2           | 153     | "                   | "                     |
| 19th               | 78          | 5,422,000     | 7,100       | 77.4                          | 17.4               | 4.2                | 1.            | 153     | "                   | "                     |
| 26th               | 76          | 5,063,000     | 6,200       | 80.4                          | 14.8               | 4.4                | .4            | 156     | "                   | "                     |
| 22d mo., 5th day.  | 76          | 5,106,000     | 7,100       | 82.2                          | 14.6               | 2.6                | .6            | 155     | "                   | "                     |
| 12th               | 80          | 5,708,000     | 6,100       | 81.4                          | 12.6               | 4.2                | 1.8           | 154     | "                   | "                     |
| 19th               | 85          | 5,346,000     | 8,000       | 81.6                          | 14.2               | 3.6                | .6            | 153     | "                   | "                     |
| 26th               | 70          | 5,404,000     | 7,700       | 78.8                          | 14.2               | .6                 | 1.            | 156     | "                   | "                     |
| 23d mo., 2d day.   | 70          | 5,542,000     | 7,300       | 77.3                          | 12.4               | 9.3                | 1.            | 155     | "                   | "                     |
| 9th                | 76          | 5,306,000     | 6,100       | 81.2                          | 15.4               | 3.                 | 4.            | 153     | "                   | "                     |
| 16th               | 87          | 5,241,000     | 5,013       | 81.2                          | 14.4               | 3.                 | 1.4           | 154     | "                   | "                     |
| 23d                | 80          | 4,457,000     | 6,900       | 86.2                          | 12.                | 1.8                | .0            | 156     | "                   | "                     |
| 30th               | 70          | 4,213,000     | 6,600       | 76.                           | 15.6               | 7.4                | 1.            | 154     | "                   | Mod.excit*            |
| 24th mo., 7th day. | 70          | 4,937,000     | 7,130       | 82.2                          | 13.4               | 4.2                | .2            | 148     | "                   | "                     |
| 14th               | 65          | 4,835,000     | 5,530       | 83.2                          | 12.2               | 3.8                | .8            | 150     | "                   | "                     |
| 21st               | 80          | 5,240,000     | 4,900       | 80.                           | 15.8               | 3.2                | 1.            | 145     | "                   | "                     |
| 28th               | 75          | 4,835,000     | 8,600       | 87.                           | 10.6               | 2.                 | .4            | 148     | "                   | "                     |
| 25th mo., 4th day. | 77          | 4,613,000     | 5,000       | 78.6                          | 18.6               | 2.2                | .6            | 141     | "                   | "                     |
| 11th               | 70          | 4,653,000     | 5,800       | 81.8                          | 12.6               | 5.6                | .0            | 141     | "                   | "                     |
| 18th               | 85          | 4,933,000     | 6,000       | 83.2                          | 14.                | 2.4                | .4            | 134     | "                   | "                     |
| 25th               | 78          | 5,166,000     | 7,266       | 89.6                          | 9.8                | 2.                 | .6            | 131     | "                   | "                     |
| 26th mo., 2d day.  | 78          | 5,584,000     | 8,300       | 85.8                          | 10.2               | 4.                 | .0            | 119     | "                   | "                     |
| 9th                | 70          | 5,475,000     | 11,533      | 81.2                          | 14.2               | 4.6                | .0            | 118     | "                   | Ter.gt.exc†           |
| 15th               | 82          | 5,631,000     | 9,100       | 92.                           | 5.8                | 2.                 | .2            | 100     | "                   | "                     |
| 17th               | 80          | 5,688,000     | 23,900      | 96.                           | 2.8                | 1.                 | .0            | .....   | "                   | "                     |
| 19th               | 93          | 5,457,000     | 22,900      | 95.6                          | 3.                 | 1.4                | .0            | .....   | "                   | "                     |
| 22d                | 92          | 6,386,000     | 13,500      | 92.8                          | 6.                 | 1.2                | .0            | 85      | Could not be taken. | "                     |

\*Terminal great excitement.

†Moderate excitement.

TABLE 2.—Case 2.

| Month of disease.   |            | Hæmoglobin. | Erythrocytes. | Leucocytes. | Polymorphonuclear leucocytes. | Small lymphocytes. | Large lymphocytes. | Eosinophiles. | Weight. | Temperature. | Stage of the disease. |
|---------------------|------------|-------------|---------------|-------------|-------------------------------|--------------------|--------------------|---------------|---------|--------------|-----------------------|
| 10th mo., 1st day.  | <i>p c</i> |             |               |             | <i>p c</i>                    | <i>p c</i>         | <i>p c</i>         | <i>p c</i>    |         |              |                       |
| 27th                | 73         | 4,966,000   | 6,500         | 76.         | 76.                           | 17.4               | 2.6                | .4            | 120     | Normal       | Excitem't             |
| 11th mo., 11th day. | 100        | 4,986,000   | 10,300        | 91.2        | 91.2                          | 6.2                | 2.6                | .6            | 123     |              |                       |
| 25th                | 83         | 4,684,000   | 10,100        | 80.2        | 80.2                          | 13.4               | 4.2                | 3.2           | 127     |              | Quiescent.            |
| 12th mo., 8th day.  | 77         | 4,777,000   | 14,800        | 74.4        | 74.4                          | 20.8               | 2.2                | 2.2           | 139     |              |                       |
| 22nd                | 80         | 5,435,000   | 18,800        | 76.         | 76.                           | 19.6               | 3.4                | 1.            | 134     |              |                       |
| 13th mo., 5th day.  | 78         | 4,937,000   | 10,800        | 82.         | 82.                           | 12.2               | 3.6                | 2.2           | 127     |              | Excitem't.            |
| 17th                | 100        | 5,560,000   | 11,300        | 75.4        | 75.4                          | 13.2               | 6.                 | 5.4           | 117     |              |                       |
| 14th mo., 5th day.  | 102        | 5,531,000   | 8,700         | 78.2        | 78.2                          | 13.6               | 3.8                | 4.4           | 121     |              |                       |
| 19th                | 76         | 5,546,000   | 13,600        | 84.4        | 84.4                          | 8.                 | 5.1                | 2.2           | 118     |              |                       |
| 15th mo., 2nd day.  | 77         | 4,026,000   | 10,200        | 80.         | 80.                           | 12.8               | 5.                 | 2.2           | 113     |              | Quiescent.            |
| 16th                | 85         | 5,808,000   | 8,500         | 89.         | 89.                           | 12.4               | 3.2                | 2.2           | 114     |              |                       |
| 16th mo., 2nd day.  | 80         | 5,017,000   | 6,300         | 82.2        | 82.2                          | 12.                | 4.3                | 7.            | 114     |              |                       |
| 13th                | 76         | 5,653,000   | 12,200        | 84.         | 84.                           | 11.                | 4.3                | 7.            | 106     |              |                       |
| 26th                | 70         | 5,240,000   | 8,700         | 82.4        | 82.4                          | 11.8               | 5.1                | 0.1           | 106     |              |                       |
| 17th mo., 9th day.  | 72         | 4,982,000   | 6,200         | 85.2        | 85.2                          | 12.2               | 2.2                | 0.1           | 102     |              |                       |
| 23rd                | 80         | 4,788,000   | 5,600         | 83.4        | 83.4                          | 11.4               | 3.6                | 1.6           | 97      |              |                       |
| 30th                | 89         | 5,306,000   | 10,533        | 80.3        | 80.3                          | 14.2               | 4.4                | .6            | 97      |              |                       |
| 18th mo., 7th day.  | 70         | 5,671,000   | 8,400         | 80.         | 80.                           | 13.2               | 6.                 | .8            | 94      |              |                       |
| 15th                | 92         | 5,453,000   | 8,200         | 79.6        | 79.6                          | 14.                | 4.2                | 2.            | 94      |              |                       |
| 22nd                | 67         | 5,182,000   | 9,100         | 77.6        | 77.6                          | 16.8               | 4.6                | 1.            | 92      |              |                       |
| 18th mo., 29th day. | 83         | 4,888,000   | 8,400         | 90.         | 90.                           | 6.6                | 3.4                | .             | 88      |              | Ter. Stupr            |
| 19th mo., 4th day.  | 82         | 5,982,000   | 16,100        | 36.4        | 36.4                          | 9.8                | 3.2                | .6            | 79      |              |                       |

TABLE 3.—Case 4.

|                     |    |           |        |      |      |     |     |       |        |            |
|---------------------|----|-----------|--------|------|------|-----|-----|-------|--------|------------|
| 12th mo., 20th day. |    | 4,360,000 | 5,400  | 73.2 | 18.8 | 4.  | 4.  | ..... | Normal | Excitem't. |
| 13th mo., 9th day.  | 85 | 4,880,000 | 5,600  | 78.8 | 14.6 | 2.8 | 3.8 | ..... |        |            |
| 23rd                | 78 | 4,722,000 | 9,700  | 81.8 | 13.8 | 2.2 | 2.2 | ..... |        | Pro. dem.* |
| 14th mo., 7th day.  | 87 | 5,728,000 | 7,000  | 79.6 | 16.  | 3.2 | 2.2 | ..... |        |            |
| 21st                | 72 | 5,648,000 | 7,300  | 81.2 | 11.8 | 4.8 | 2.2 | ..... |        |            |
| 15th mo., 4th day.  | 85 | 5,360,000 | 10,600 | 88.8 | 7.   | 3.6 | .6  | ..... |        |            |
| 11th                | 90 | 4,822,000 | 6,700  | 85.8 | 17.4 | 5.  | 1.8 | ..... |        |            |
| 18th                | 84 | 4,728,000 | 9,800  | 80.4 | 14.8 | 3.4 | 1.4 | ..... |        |            |
| 16th mo., 4th day.  | 80 | 5,275,000 | 9,700  | 80.  | 13.  | 5.6 | 1.4 | ..... |        |            |
| 18th                | 80 | 5,155,000 | 9,000  | 85.4 | 8.8  | 5.8 | .0  | ..... |        |            |
| 17th mo., 5th day.  | 90 | 5,666,000 | 14,300 | 80.6 | 13.2 | 5.4 | .8  | ..... |        |            |
| 19th                | 83 | 5,278,000 | 8,020  | 79.4 | 15.4 | 4.2 | 1.  | ..... |        |            |
| 18th mo., 2nd day.  | 65 | 4,515,000 | 7,000  | 78.8 | 16.  | 5.  | .2  | ..... |        | Ter. stupr |
| 16th                | 68 | 4,916,000 | 10,160 | 81.6 | 15.2 | 2.4 | .8  | ..... |        |            |
| 31st                | 70 | 4,222,000 | 8,700  | 86.2 | 9.4  | 4.4 | .0  | ..... |        |            |
| 19th mo., 12th day. | 70 | 4,697,000 | 14,660 | 94.2 | 3.8  | 2.  | 0.  | ..... |        |            |

\*Profound dementia.

TABLE 4.—Case 5.

|                     |    |           |        |      |      |     |       |       |        |            |
|---------------------|----|-----------|--------|------|------|-----|-------|-------|--------|------------|
| 14th mo., 7th day.  | 73 | 5,037,000 | 5,100  | 79.9 | 14.  | 4.7 | 1.4   | ..... | Normal | Quiescent  |
| 24th                | 73 | 6,809,000 | 5,900  | 79.3 | 12.1 | 7.4 | 1.2   | ..... |        |            |
| 15th mo., 1st day.  | 91 | 5,054,000 | 8,300  | 80.  | 12.1 | 6.7 | 1.2   | ..... |        |            |
| 9th                 | 93 | 5,537,000 | 7,160  | 79.4 | 14.2 | 5.4 | 1.0   | ..... |        |            |
| 15th                | 83 | 5,267,000 | 7,800  | 79.5 | 15.2 | 1.2 | 1.1   | 113   |        |            |
| 22nd                | 92 | 4,938,000 | 6,200  | 80.6 | 12.9 | 5.6 | .9    | 112   |        |            |
| 15th mo., 29th day. | 82 | 4,791,000 | 6,600  | 82.  | 12.3 | 5.  | .6    | 120   |        |            |
| 16th mo., 5th day.  | 83 | 5,133,000 | 7,600  | 81.2 | 13.1 | 4.5 | 1.1   | 111   |        | Excitem't  |
| 12th                | 83 | 5,442,000 | 7,600  | 82.2 | 10.4 | 6.  | 1.4   | 110   |        |            |
| 19th                | 85 | 5,622,000 | 6,700  | 84.  | 10.3 | 4.  | 1.7   | 110   |        |            |
| 26th                | 85 | 5,724,000 | 11,400 | 84.8 | 10.  | 4.4 | .8    | 109   |        |            |
| 17th mo., 2nd day.  | 86 | 5,624,000 | 11,300 | 84.4 | 11.6 | 3.6 | .4    | ..... |        |            |
| 5th                 | 76 | 5,162,000 | 17,200 | 93.2 | 3.6  | 3.2 | ..... | ..... |        | Ter. stupr |
| 9th                 | 86 | 6,333,000 | 14,267 | 93.4 | 4.   | 1.4 | 1.2   | 85    |        |            |

TABLE 5.—Case 6.

| Month of disease.  | Hæmoglobin. | Erythrocytes. | Leucocytes. | Polymorphonuclear<br>leucocytes. | Small lymphocytes. | Large lymphocytes. | Eosinophiles. | Weight. | Temperature. | Stage of the disease. |
|--------------------|-------------|---------------|-------------|----------------------------------|--------------------|--------------------|---------------|---------|--------------|-----------------------|
| 7th mo., 31st day. | 85          | 5,488,000     | 6,300       | 82.2                             | 12.8               | 4.6                | .4            | .....   | Normal       | Ter. stupr            |
| 8th mo., 10th day. | 70          | 4,573,000     | 6,500       | 86.2                             | 7.8                | 5.4                | .6            | .....   | 99.4         | "                     |
| 17th               | 68          | 4,769,000     | 10,000      | 85.                              | 9.4                | 4.4                | 1.2           | .....   | 98.6         | "                     |
| 26th               | 60          | 3,711,000     | 17,720      | 93.                              | 2.6                | 4.4                | .0            | .....   | "            | "                     |
| 9th mo., 2nd day.  | 65          | 4,484,000     | 25,000      | 83.                              | 14.                | 2.2                | .8            | .....   | 93.4         | "                     |

TABLE 6.—Case 7.

|                     |     |           |       |      |      |     |     |     |            |            |
|---------------------|-----|-----------|-------|------|------|-----|-----|-----|------------|------------|
| 19th mo., 18th day. | 70  | 4,516,000 | 6,600 | 70.6 | 21.2 | 6.2 | .2  | 113 | Not taken. | Excitem't  |
| 20th mo., 6th day.  | 85  | 5,293,000 | 5,533 | 66.  | 24.4 | 6.8 | 2.8 | 107 |            | "          |
| 20th                | 86  | 5,053,000 | 5,030 | 71.8 | 24.6 | 2.4 | 1.4 | 110 |            | "          |
| 21st mo., 8th day.  | 76  | 4,244,000 | 6,300 | 53.8 | 37.2 | 8.2 | .8  | 111 |            | "          |
| 22nd                | 78  | 4,400,000 | 5,900 | 54.4 | 39.  | 3.6 | 3.6 | 112 |            | "          |
| 22nd mo., 5th day.  | 105 | 5,089,000 | 9,060 | 71.8 | 20.2 | 4.2 | .8  | 104 |            | Ter. stupr |

TABLE 7.—Case 8.

|                    |     |           |        |      |      |     |     |       |        |             |
|--------------------|-----|-----------|--------|------|------|-----|-----|-------|--------|-------------|
| 6th mo., 6th day.  | 75  | 6,011,000 | 8,400  | 82.7 | 10.4 | 6.1 | .8  | ..... | Normal | Quiescent   |
| 22nd               | 84  | 5,040,000 | 6,440  | 76.8 | 15.7 | 6.6 | .9  | ..... | "      | "           |
| 29th               | 83  | 5,377,000 | 9,144  | 75.4 | 16.5 | 6.9 | 1.2 | ..... | "      | "           |
| 7th mo., 8th day.  | 87  | 5,355,000 | 8,900  | 81.2 | 13.3 | 4.7 | .8  | ..... | "      | "           |
| 13th               | 93  | 5,769,000 | 10,500 | 83.5 | 10.6 | 5.  | .9  | 172   | "      | "           |
| 19th               | 89  | 5,707,000 | 7,867  | 85.1 | 9.1  | 4.6 | 1.2 | 169   | "      | "           |
| 25th               | 89  | 4,951,000 | 8,130  | 82.  | 11.4 | 4.6 | 1.  | 171   | "      | "           |
| 8th mo., 1st day.  | 91  | 5,658,000 | 7,910  | 85.  | 9.6  | 5.  | .4  | ..... | "      | "           |
| 8th                | 89  | 5,243,000 | 9,800  | 81.6 | 10.6 | 7.  | .8  | 170   | "      | "           |
| 15th               | 90  | 5,235,000 | 9,533  | 82.8 | 10.4 | 6.  | .8  | 168   | "      | "           |
| 22nd               | 90  | 5,418,000 | 11,860 | 81.2 | 14.4 | 3.8 | .6  | 169   | "      | "           |
| 30th               | 90  | 5,884,000 | 10,600 | 81.4 | 13.8 | 3.6 | 1.2 | 168   | "      | "           |
| 9th mo., 7th day.  | 77  | 5,582,000 | 9,460  | 81.6 | 14.4 | 3.  | 1.  | 168   | "      | "           |
| 18th               | 80  | 5,693,000 | 6,130  | 79.2 | 14.6 | 4.2 | 2.  | 170   | "      | "           |
| 24th               | 80  | 5,387,000 | 6,260  | 78.  | 14.4 | 5.6 | 2.  | 170   | "      | "           |
| 10th mo., 3rd day. | 85  | 5,390,000 | 6,260  | 85.  | 10.8 | 3.  | 1.2 | 173   | "      | "           |
| 10th               | 74  | 4,284,000 | 5,133  | 80.8 | 14.2 | 3.6 | 1.4 | 171   | "      | "           |
| 17th               | 68  | 4,900,000 | 5,000  | 83.4 | 10.4 | 4.2 | 2.  | 170   | "      | "           |
| 24th               | 86  | 5,200,000 | 7,800  | 82.4 | 13.6 | 2.8 | 1.2 | 167   | "      | "           |
| 31st               | 83  | 5,267,000 | 8,130  | 81.2 | 13.6 | 3.4 | 1.8 | ..... | "      | "           |
| 11th mo., 7th day. | 90  | 5,262,000 | 6,800  | 85.  | 10.8 | 3.2 | 1.  | 161   | "      | "           |
| 14th               | 75  | 5,111,000 | 7,700  | 80.8 | 15.2 | 3.6 | .4  | 164   | "      | "           |
| 21st               | 80  | 5,302,000 | 6,000  | 77.4 | 22.  | 3.  | .6  | 158   | "      | "           |
| 29th               | 85  | 5,800,000 | 7,400  | 80.4 | 13.2 | 5.2 | 1.  | 157   | "      | "           |
| 12th mo., 5th day. | 85  | 4,942,000 | 10,660 | 84.  | 10.2 | 4.  | 1.8 | 157   | "      | "           |
| 12th               | 90  | 5,408,000 | 10,900 | 81.4 | 13.2 | 4.  | 1.4 | 155   | "      | "           |
| 19th               | 97  | 4,693,000 | 16,500 | 92.  | 5.6  | 2.  | .2  | ..... | "      | Ter. exc't* |
| 26th               | 102 | 6,302,000 | 17,860 | 79.2 | 14.6 | 5.2 | 1.  | 128   | "      | "           |
| 27th               | 105 | 6,373,000 | 17,920 | 81.8 | 15.6 | 1.6 | 1.  | ..... | "      | "           |
| 13th mo., 2nd day. | 120 | 7,551,000 | 27,000 | 91.6 | 6.   | 2.  | 0.  | 121   | "      | "           |

\*Terminal excitement.

TABLE 8.—Case 9.

| Month of disease.   | Hemoglobin. | Erythrocytes. | Leucocytes. | Polymorphonuclear<br>leucocytes. | Small lymphocytes. | Large lymphocytes. | Eosinophiles. | Weight. | Temperature. | Stage of the disease. |
|---------------------|-------------|---------------|-------------|----------------------------------|--------------------|--------------------|---------------|---------|--------------|-----------------------|
| 17th mo., 29th day. | <i>p c</i>  | 5,667,000     | 14,500      | <i>p c</i>                       | <i>p c</i>         | <i>p c</i>         | <i>p c</i>    |         |              |                       |
| 21st mo., 13th day. | 90          | 5,586,000     | 14,100      | 78.2                             | 15.                | 5.6                | 1.2           | .....   |              | Remission             |
| 20th                | 95          | 5,418,000     | 19,700      | 88.6                             | 8.4                | 2.8                | 3.2           | .....   |              | Stupor                |
| 28th                | 85          | 5,418,000     | 11,300      | 80.6                             | 14.                | 2.8                | 2.6           | .....   |              |                       |
| 22nd mo., 2nd day.  | 90          | 5,222,000     | 14,200      | 79.4                             | 14.4               | 2.2                | 4.2           | .....   |              | Impr'm't*             |
| 10th                | 95          | 5,329,000     | 6,500       | 76.                              | 16.2               | 3.2                | 4.2           | .....   |              | "                     |
| 17th                | 88          | 5,293,000     | 7,260       | 67.8                             | 25.8               | 3.2                | 3.2           | .....   |              | "                     |
| 24th                | 95          | 5,671,000     | 11,500      | 64.2                             | 28.6               | 4.2                | 3.2           | .....   |              | "                     |
| 31st                | 97          | 5,964,000     | 10,133      | 73.6                             | 18.2               | 6.2                | 3.2           | .....   |              | "                     |
| 23rd mo., 7th day.  | 106         | 6,325,000     | 10,900      | 80.4                             | 13.                | 3.8                | 2.8           | .....   | 97.4         | "                     |
| 14th                | 102         | 5,874,000     | 9,460       | 72.4                             | 15.6               | 7.4                | 4.6           | .....   | 98.4         | "                     |
| 21st                | 80          | 5,147,000     | 7,700       | 70.                              | 21.8               | 5.6                | 2.6           | .....   | 98.          | Par.stupr†            |
| 28th                | 102         | 6,013,000     | 10,300      | 60.6                             | 31.6               | 4.2                | 3.6           | .....   |              | "                     |
| 24th md., 7th day.  | 72          | 5,393,000     | 5,000       | 78.6                             | 15.4               | 3.4                | 2.6           | .....   |              | "                     |
| 14th                | 76          | 4,978,000     | 7,060       | 80.                              | 11.8               | 5.2                | 3.            | .....   |              | "                     |
| 21st                | 78          | 5,071,000     | 9,500       | 81.                              | 16.                | 2.6                | 4.            | .....   |              | "                     |
| 28th                | 80          | 5,511,000     | 10,500      | 77.6                             | 17.6               | 4.2                | 4.            | .....   |              | "                     |
| 25th mo., 4th day.  | 84          | 5,364,000     | 8,900       | 65.2                             | 26.8               | 5.                 | 3.            | .....   |              | "                     |
| 11th                | 86          | 5,217,700     | 5,300       | 68.6                             | 20.                | 6.4                | 5.            | .....   |              | "                     |
| 18th                | 90          | 5,477,000     | 5,900       | 76.                              | 18.6               | 3.4                | 2.            | .....   |              | "                     |
| 24th                | 82          | 5,551,000     | 6,400       | 74.8                             | 19.                | 5.8                | 4.            | .....   |              | "                     |
| 30th                | 75          | 4,778,000     | 13,950      | 90.4                             | 6.8                | 1.4                | 1.4           | .....   | 99.2         | "                     |
| 26th mo., 2nd day.  | 85          | 5,338,000     | 11,650      | 86.2                             | 9.4                | 3.8                | 4.8           | .....   | 99.6         | "                     |
| 9th                 | 80          | 4,942,000     | 9,460       | 74.                              | 16.6               | 4.6                | 4.8           | .....   |              | "                     |
| 16th                | 78          | 5,422,000     | 7,400       | 75.6                             | 18.4               | 3.4                | 2.6           | .....   |              | "                     |
| 23rd                | 77          | 5,382,000     | 4,600       | 77.2                             | 15.8               | 4.                 | 3.            | .....   |              | "                     |
| 30th                | 80          | 5,322,000     | 11,600      | 74.0                             | 18.5               | 5.3                | 2.2           | .....   |              | "                     |
| 27th mo., 6th day.  | 76          | 4,995,000     | 15,000      | 71.2                             | 20.8               | 5.6                | 2.4           | .....   |              | Quiescent             |
| 13th day.           | 70          | 4,915,000     | 5,960       | 74.8                             | 18.4               | 5.3                | 2.2           | .....   |              | "                     |
| 20th                | 75          | 4,315,000     | 6,150       | 64.                              | 26.5               | 5.5                | 4.            | .....   |              | "                     |
| 27th                | 82          | 5,191,000     | 7,130       | 84.                              | 10.6               | 4.6                | 4.8           | .....   |              | "                     |
| 28th mo., 5th day.  | 74          | 5,018,000     | 6,100       | 70.8                             | 22.4               | 4.8                | 2.            | .....   |              | "                     |
| 11th                | 88          | 5,493,000     | 9,267       | 76.4                             | 17.8               | 4.6                | 1.2           | .....   |              | "                     |
| 18th                | 72          | 4,810,000     | 6,400       | 74.                              | 20.6               | 4.2                | 1.2           | .....   |              | "                     |
| 25th                | 67          | 4,551,000     | 10,200      | 72.6                             | 20.4               | 1.4                | 2.6           | .....   |              | "                     |
| 29th mo., 1st day.  | 65          | 4,660,000     | 9,200       | 74.                              | 21.2               | 3.2                | 1.6           | .....   |              | "                     |
| 8th                 | 81          | 4,897,000     | 6,200       | 77.8                             | 16.4               | 4.8                | 1.            | .....   |              | "                     |
| 15th                | 80          | 5,071,000     | 6,860       | 67.                              | 25.4               | 4.8                | 2.8           | .....   |              | "                     |
| 22nd                | 73          | 4,693,000     | 10,300      | 72.2                             | 22.2               | 4.2                | 1.4           | .....   |              | "                     |
| 29th                | 82          | 5,547,000     | 7,750       | 76.6                             | 17.3               | 4.2                | 2.            | .....   |              | Ter. stupr            |
| 30th mo., 5th day.  | 73          | 4,500,000     | 8,666       | 76.4                             | 15.4               | 6.                 | 2.2           | .....   | 97.2         | "                     |
| 12th                | 80          | 4,700,000     | 10,000      | 87.4                             | 7.                 | 5.2                | 4.            | .....   | 99.6         | "                     |
| 18th                | 78          | 4,131,000     | 13,730      | 84.8                             | 11.6               | 3.2                | 4.            | .....   | 99.6         | "                     |
| 22nd                |             | 3,600,000     | 10,700      | .....                            | .....              | .....              | .....         | .....   | 105          | "                     |

\*Improvement. †Partial stupor.



TABLE 9.—*Case 10.*

| Month of disease.   |    | Hæmoglobin. | Erythrocytes. | Leucocytes. | Polymorphonuclear<br>leucocytes. | Small lymphocytes. | Large lymphocytes. | Eosinophiles. | Weight. | Temperature. | Stage of the disease. |
|---------------------|----|-------------|---------------|-------------|----------------------------------|--------------------|--------------------|---------------|---------|--------------|-----------------------|
|                     |    | <i>p c</i>  |               |             | <i>p c</i>                       | <i>p c</i>         | <i>p c</i>         | <i>p c</i>    |         |              |                       |
| 18th mo., 19th day. | 87 | 5,104,000   | 8,250         | 79.2        | 15.2                             | 4.2                | .9                 | .....         |         | Normal       | Quiescent.            |
| 27th                | 89 | 5,201,000   | 7,000         | 67.         | 22.8                             | 9.4                | .6                 | .....         |         | "            | "                     |
| 20th mo., 3rd day.  | 89 | 5,335,000   | 8,400         | 68.2        | 23.                              | 7.                 | 1.7                | .....         |         | "            | "                     |
| 10th                | 93 | 5,871,000   | 8,700         | 70.5        | 20.5                             | 8.1                | .9                 | 150           |         | "            | "                     |
| 17th                | 85 | 5,580,000   | 7,000         | 78.1        | 15.2                             | 5.4                | 1.1                | 152           |         | "            | "                     |
| 23rd                | 89 | 5,222,000   | 7,100         | 68.9        | 20.4                             | 8.9                | 2.5                | 151           |         | "            | "                     |
| 30th                | 91 | 5,769,000   | 8,300         | 73.         | 19.1                             | 6.5                | 1.4                | 151           |         | "            | "                     |
| 21st mo., 6th day.  | 91 | 5,247,000   | 8,700         | 71.9        | 19.1                             | 7.7                | 1.3                | 151           |         | "            | "                     |
| 13th                | 85 | 5,275,000   | 7,300         | 76.2        | 16.7                             | 6.                 | 1.1                | 150           |         | "            | "                     |
| 20th                | 88 | 5,742,000   | 9,500         | 78.         | 17.4                             | 3.6                | 1.                 | 151           |         | "            | "                     |
| 27th                | 82 | 5,475,000   | 8,500         | 77.         | 18.                              | 4.                 | 1.                 | 152           |         | "            | "                     |
| 22nd mo., 3rd day.  | 86 | 5,275,000   | 6,700         | 74.8        | 18.6                             | 5.8                | .8                 | 150           |         | "            | "                     |
| 10th                | 76 | 5,409,000   | 10,260        | 77.         | 16.6                             | 3.8                | 2.6                | 152           |         | "            | "                     |
| 19th                | 74 | 4,498,000   | 5,260         | 72.5        | 15.                              | 9.5                | 3.                 | 151           |         | "            | "                     |
| 27th                | 78 | 4,951,000   | 4,900         | 72.6        | 19.6                             | 6.                 | 1.8                | .....         |         | "            | "                     |
| 23rd mo., 4th day.  | 76 | 5,244,000   | 4,300         | 72.5        | 22.                              | 3.71               | 1.7                | .....         |         | "            | "                     |
| 11th                | 78 | 4,478,000   | 4,530         | 73.         | 22.4                             | 3.6                | 1.                 | .....         |         | "            | "                     |
| 18th                | 82 | 4,644,000   | 5,133         | 72.4        | 21.                              | 7.                 | 1.6                | .....         |         | "            | "                     |
| 25th                | 80 | 4,773,000   | 4,900         | 74.4        | 22.                              | 2.8                | .8                 | 149           |         | "            | "                     |
| 24th mo., 1st day.  | 78 | 4,978,000   | 4,900         | 70.         | 23.6                             | 4.6                | 1.2                | .....         |         | "            | "                     |
| 8th                 | 65 | 4,538,000   | 5,100         | 76.4        | 20.4                             | 2.6                | .6                 | 161           |         | "            | Tær. stupr.           |
| 15th                | 78 | 4,889,000   | 7,000         | 65.         | 28.2                             | 5.6                | .6                 | .....         |         | "            | "                     |
| 22nd                | 80 | 5,333,000   | 8,200         | 80.4        | 12.8                             | 5.2                | 1.6                | .....         |         | "            | "                     |
| 30th                | 90 | 6,271,000   | 15,860        | 86.2        | 6.8                              | 6.8                | .2                 | 107           |         | "            | "                     |

TABLE 10.—*Case 11.*

|                     |    |           |       |      |      |     |     |       |        |             |
|---------------------|----|-----------|-------|------|------|-----|-----|-------|--------|-------------|
| 20th mo., 2nd day.  | 80 | 5,093,000 | 4,860 | 69.2 | 24.6 | 3.2 | 3.  | 174   | Normal | Sub. exc't* |
| 21st mo., 3rd day.  | 70 | 5,422,000 | 5,300 | 74.  | 22.  | 3.6 | 4.  | 174   | "      | "           |
| 22nd mo., 3rd day.  | 76 | 4,340,000 | 6,600 | 77.2 | 17.8 | 4.  | 1.  | 169   | "      | "           |
| 23rd mo., 30th day. | 78 | 4,512,000 | 8,500 | 86.5 | 11.1 | 1.9 | .5  | 158   | "      | Par. stupr  |
| 23rd mo., 6th day.  | 95 | 5,347,000 | 8,725 | 71.4 | 25.  | 3.4 | .2  | ..... | "      | "           |
| 13th                | 95 | 4,804,000 | 6,300 | 74.  | 20.8 | 4.  | 1.2 | ..... | "      | "           |
| 20th                | 68 | 3,920,000 | 5,300 | 83.8 | 12.4 | 2.6 | 1.2 | 157   | "      | Stupor      |
| 27th                | 75 | 3,020,000 | 9,530 | 81.8 | 15.4 | 2.6 | .2  | 150   | "      | "           |
| 24th mo., 6th day.  | 83 | 5,213,000 | 6,200 | 72.  | 16.  | 1.4 | .6  | 151   | "      | "           |
| 13th                | 65 | 4,707,000 | 7,730 | 80.  | 14.8 | 2.8 | 1.8 | 146   | "      | "           |
| 20th                | 76 | 5,207,000 | 6,132 | 68.2 | 24.8 | 6.8 | 2.  | 148   | "      | "           |
| 27th                | 85 | 5,915,000 | 6,250 | 82.8 | 14.4 | 2.  | .8  | 143   | "      | "           |
| 25th mo., 3rd day.  | 80 | 5,547,000 | 9,430 | 73.2 | 20.  | 5.  | 1.6 | 146   | "      | "           |
| 10th                | 70 | 5,824,000 | 7,730 | 79.  | 15.8 | 4.8 | 4.  | 145   | "      | "           |
| 17th                | 76 | 5,264,000 | 5,000 | 86.  | 10.6 | 3.2 | .2  | 145   | "      | Quiescent   |
| 24th                | 70 | 5,271,000 | 7,800 | 77.8 | 17.  | 4.6 | .6  | 142   | "      | "           |
| 26th mo., 8th day.  | 80 | 5,533,000 | 7,860 | 74.2 | 22.4 | 3.2 | .2  | 144   | "      | "           |
| 24th                | 68 | 4,862,000 | 6,000 | 76.  | 19.6 | 4.2 | .2  | 137   | "      | "           |
| 27th mo., 5th day.  | 75 | 4,747,000 | 8,800 | 82.2 | 14.2 | 3.2 | 4.  | 137   | "      | "           |
| 19th                | 80 | 5,328,800 | 7,260 | 81.4 | 14.8 | 3.6 | .2  | 134   | "      | "           |
| 28th mo., 2nd day.  | 78 | 5,333,000 | 8,800 | 77.8 | 17.2 | 4.4 | .6  | 139   | "      | Stupor      |

\*Subsiding excitement.

## DISCUSSION.

THE PRESIDENT: I just wish to say one word bearing somewhat upon the paper of Dr. Diefendorf, namely, that at the Butler Hospital during the past few months one of my internes, Doctor Kramer, has been conducting a very interesting series of experiments with reference to leucocytes in the cerebro-spinal fluid in cases of paralytic dementia. Leucocytosis was found

in all the cases of general paresis that underwent lumbar puncture, and in no other case of insanity examined did the cerebro spinal fluid reveal that condition. It seems to me, therefore, that in this simple and safe procedure we have a very valuable means of help in diagnosing doubtful cases of general paralysis. The experiments were conducted along the lines of the French observer who read a paper at the Grenoble Congress on the subject last year.

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<sup>1</sup> Jour. of Mental Science, 1884, p. 378.

<sup>2</sup> Journal of Mental Science, 1890, p. 504.

<sup>3</sup> Ueber Blutuntersuchungen bei Geisteskranken, Inaug-Disert. Bonn. 1891.

<sup>4</sup> Wien. Med. Wochenschrift, No. 15, 1892.

<sup>5</sup> Archiv di Psichiat. Scienze. Vol. XV. Fasc. 111. p. 293, 1894.

<sup>6</sup> N. Y. State Hosp. Bulletins, January 1896.

<sup>7</sup> Am. Jour. Med. Sciences, 1897.

<sup>8</sup> New York State Hosp. Bulletins, July, 1897.

<sup>9</sup> Prof. Ewing informs me that he has observed a somewhat similar tendency in isolated cases of cancer and of tuberculosis.

<sup>10</sup> Idem cit.

<sup>11</sup> Brain, Winter—1902.

## THE TOXEMIC BASIS OF CERTAIN BRAIN DISEASES.

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*By William Elliott Dold, M. D.,  
New York City.*

The important question of various intoxications, voluntary and involuntary, as causes of mental alienation, becomes constantly more interesting, as these are more carefully studied. It is a question that frequently perplexes and discourages the general practitioner and one that is especially vexing in many cases to the asylum or sanitarium physician. The opinion is now expressed by some investigators that there is probably a toxic foundation for all forms of insanity, and while this is not susceptible of full demonstration, it is certainly more generally accepted than ever before. Our chemical knowledge is not sufficiently acute and our microscopical work not yet perfect enough to settle this elusive question, but I believe that the scientific and zealous research now being pursued in this, as well as in other countries, will in a course of a few years bring forth decided and satisfactory results.

I can not hope, in the compass of a short paper, to do more than call attention in a cursory way to the different forms of intoxication, but the fact that so much medical literature has been devoted to this subject in recent years, warrants me in the declaration that it is second to none in the domain of psychiatry.

The profound effects of micro-organisms upon the human system, especially upon the nerve centres, are full of interest. In small-pox, typhus, typhoid, pneumonia, malarial infection, influenza, the puerperal state, acute rheumatism and other such diseases, how often do we see a mental collapse, characterized as a rule by confusion and incoherency. Such cases, however,

do not constantly present such features; at times the delirium reaches that of an acute mania and the patient is noisy, violent, and dangerous. I have had a number of such patients who exhibited such symptoms after surgical operations. In intermittent fever I have seen insanity develop, due I believe to the micro-organism of that affection. In all these cases, the general health is greatly disordered and all the functions are enervated. The urine is often loaded with ptomaines, the blood rich in bacteria, the brain centres lose their nutritive force and finally we have a nervous collapse, and insanity.

Of all the forms of brain disease produced by toxins, none are more important than those due to the luetic virus. This subject alone might well engage my entire time; for while I can not affirm that syphilis is the direct cause of insanity, I feel sure that it produces such disorders of nutrition, that in an enormous number of cases, at least in a great centre like New York, we have varying forms of brain disease; and especially is this so in that most hopeless malady, in dementia paralytica. I have had under my care a large number of these cases, and while I have not always succeeded in obtaining a clear history, I have felt reasonably sure of transmitted or acquired lues. The metamorphoses in tissues in this disease can only be explained by the hypothesis of a toxemic state of the blood, due in all probability to a poison of what has been designated as parasymphilitic nature.

There is every reason to believe that the micro-organisms of phthisis play an important rôle in the production of mental disease, and well-known alienists have written of a phthisical insanity. I have recently treated three such cases, in which there were no mental manifestations, until the lung disease was fully developed.

As to the poisons taken into the system accidentally or voluntarily, none play a more important part than alcohol. It is probably the most potent agent in degenerating the human race. It may not act so speedily and destructively as certain others, but we see the effects so constantly, and so many thousands suffer from its harmful influence, that the study of these effects is of the greatest moment. Experiments prove that the nervous system is peculiarly liable to pathological lesions from the abuse of alcohol; the brain cells, the neuroglia, the nerve



fibres and blood vessels, especially of the cortex, being the favorite seat of the morbid changes. It is true that in many, possibly in the majority of cases affected by alcoholic insanity, there is a predisposition to brain disease, but I have seen typical cases where the hereditary history was good. As a class, degenerates are peculiarly susceptible to the influence of intoxicants; their moral sensibilities and their powers of self-control weaken rapidly under the use of alcohol, and these deficiencies are the earliest symptoms of brain complication. Very thorough tests have been made by Kraepelin and others who proved that the habitual use of alcohol materially decreases the power for mental work.

The use of opium in its various forms not infrequently causes insanity. Many of the victims, unfortunately, are physicians, and I beg to cite a case that came under my observation some months ago. The patient, a very distinguished member of our fraternity in his native state, was accustomed to taking about 40 grains of morphine hypodermatically, each day; to this, he at times added cocaine. Some time before I saw him he developed the delusion that his system had been attacked by a large and fierce organism, which he called a "black bacillus." These creatures he declared to be macroscopic and insisted that he could see them settle upon him in myriads and at once burrow under his skin. Finally he became impressed with the belief that unless he took decided action, his life would pay the forfeit, and deadening the parts by the use of cocaine, he commenced cutting into the tissues of his body. As the blood in these wounds coagulated and became dark, he would cut away the small clots and place them in alcohol, his intention being to have careful microscopical examination made concerning such an unusual organism. I have now a jar containing about half a pound of his skin, fat, blood and muscular tissue, that he brought with him to New York. As he took little care of the wounds, he soon began to suffer from septic poisoning, became anaemic and weak to an extreme degree, so that his relatives in alarm, decided to place him under treatment. On the journey, he thought that every cinder in the cars that fell upon him was a "black bacillus" and was greatly distressed to feel that he alone should be the victim of such a singular and dreadful visitation. Under treatment as the poisons were eliminated from

his system and the wounds properly dressed, he improved, but never while under my care did he seem to realize or confess that he had labored under delusions.

Cocaine when used in considerable quantity is another agent that produces insanity of a most painful form. The visual hallucinations are especially distressing and the moral and intellectual perversion is proverbial. Amnesia, insomnia, anorexia are common and the victims of this habit are most unsatisfactory patients to treat.

Chloral produces mental symptoms in its habitués not unlike those of morphine and cocaine. I have seen the subjects of lead poisoning suffer from repeated and violent convulsions with mental excitement similar to that of alcoholism. Again, the toxic properties of mercury, at times, cause confusion and excitement. Much has been written recently concerning auto-intoxication. Boardman Reed says, "There is a growing conviction on the part of both the men engaged in investigating the problems of metabolism from the laboratory side, and the more scientific clinical observers that auto-intoxication by the products of indigestion and a faulty assimilation plays a large role in the causation of systemic diseases. The evidences of this fact are multiplying on every hand. That the liver, kidneys, heart and arterial system generally, and the nervous system, can be injuriously influenced in this way, chronic organic disease finally developing, is no longer open to question." We know that ptomaines and other poisons, having origin in the stomach and intestines, especially in the latter, infect the body and cause a rapid deterioration of the nervous system. In hypochondriacal subjects and in most forms of melancholia, there is dilation of the stomach and this condition is most favorable for the manifestations of auto-intoxication. So constantly does the physician who treats insanity have this forced upon his attention, that almost his first efforts on a case are to disinfect the alimentary tract by means of salol, calomel, the sulphocarbolates, bismuth, charcoal, lavage, etc. I have mentioned melancholia especially, but there is reason to believe that many attacks of the various forms of mania have their origin in the same way. No one who has seen much of epilepsy can fail to ask himself the question, if many of the manifestations are not due to auto-intoxication. Neurasthenia, that fore-

runner of so many mental collapses is in all probability due to the same causes. In many of these cases we find a rapid pulse, high temperature, clammy and cold hands and feet, a coated tongue and foul breath, dilated pupils, a peculiar pasty skin; at times acne and other eruptions, and decided prostration. Auto-intoxication from disordered condition of the liver is by no means rare. When this organ, from the excessive use of alcohol or other causes, loses its power of destroying poisons that arise from intestinal putrefaction, various nerve disturbances may ensue, which are often perplexing to the physician and dangerous to the patient. I have recently had under observation an alcoholic woman with hepatic insufficiency, in consequence of which her blood and urine were loaded with biliary pigment and potassium salts. She had delirium, accompanied by great enervation, a rapid pulse, painful visual hallucinations, and was under my care for weeks, before she responded to treatment.

The thyroid gland furnishes, through disturbances of its functions, a most interesting example of how the nervous system may be affected. Three forms of disease, all implicating the nervous system—myxœdema, cretinism and exophthalmic goitre—are due to morbid changes in the organ. The first, myxœdema, is due to an abolishment of its normal action, from atrophy or other causes. This disease, which is very characteristic, most often affects women. The lips, hands and feet become thick and large; the hair falls out; the speech is drawling and slow; the memory defective; there is much irritability at times, and I have seen a case where there were outbursts of noisy violence.

In cretinism we find hypertrophy or atrophy of the gland, due to new tissue formation. The victims are degenerate; the bones of the head are irregularly developed; the features asymmetrical, the expression is painfully dull, the intelligence weakened. I have been particularly interested in observing the symptoms among the congenital cretins of Switzerland. Exophthalmic goitre, of the three forms of disease, is probably the most common and like myxœdema is seen oftenest in women, and generally in hysterical subjects, but in this form the pulse is very rapid, instead of slow as in myxœdema; there is profuse perspiration and much flushing of the face, and

where insanity supervenes, it is of the maniacal form, with much irritability, incoherence, insomnia, gastric and intestinal disturbance.

The subject might be pursued further and defective metabolism in its various forms, as in diabetes, rheumatism, gout and allied disorders, discussed, but I hope that I have sufficiently demonstrated my proposition, that for our specialty in medicine, no other question has greater or perhaps as great importance.

#### DISCUSSION.

DR. POMEROY: There is probably no physician here or anywhere who has had any considerable experience in practice who has not seen a number of cases that would probably illustrate Doctor Dold's paper, and a great many cases that we cannot explain or understand. The only excuse I give for mentioning one or two is that they seem to me very unusual and that I think they will be interesting.

The first that I shall mention was the case of a man forty seven years of age. He was brought to Lake Geneva Sanitarium in July, 1901, about two years ago. His symptoms gave us some doubt as to whether it was a case of alcoholic psychosis or chronic progressive dementia in a period of exaltation. In a routine study of his physical condition we found the gonococcus of Neisser, although there were no symptoms except the microscopic findings in the urinary sediment. However, I resolved to put him on the Janet treatment of irrigation for fifteen days. The result of the treatment was apparently so marked that in a week the improvement was very pronounced. We had then no doubt as to the toxine generated having caused the insanity, although we were perfectly convinced that there had been no criminal exposure to this organism for eight years or over. The treatment was persisted in for fifteen days at the end of which time the man was entirely rational. He remained with us three or four weeks without a sign of a relapse and there has not been a moment of relapse since. While the man had been addicted to alcohol there was a considerable period of total abstinence which has continued to the present time.

The other case to which I shall call your attention for a moment was a case that was brought to my attention in Calumet, Michigan, at the time I was in charge of the medical and surgical service of the Calumet and Hecla Mining Company. A miner's wife, insane, was brought to me to be certified to the state asylum. In making a routine examination, as I do in all these cases, I found a tumor which I thought was a floating kidney with resulting hydronephrosis of considerable extent. But upon inflating the colon I found that the kidney-shaped tumor not only did not go back to its proper place, but was in front of the meso-colon, and we then diagnosed it either as a long pedicle uterine myoma or an ovarian cyst of unusual solidity. I should state that the mental condition was one of profound melancholia. I operated upon the case a day or two thereafter and it was just at the time



when we were using for the first time the Fowler's position, as it is called in surgery—the elevation, after operation, of the head instead of the foot of the bed to a considerable degree. We used it in all cases of laparotomy at that time whether or not we had perfect confidence that there had been no contamination of the wound by any fault in technique or otherwise.

This tumor was found to be a teratoma attached by a long pedicle to the broad ligament and it weighed six pounds. The woman came out of the anæsthetic after the operation perfectly rational. She remained so for eight days when the bed was again put in the horizontal position. She then for the first time vomited and became again melancholic and gave indications, slight but decisive, of hallucinations and delusions—hallucinations of hearing especially. The bed was immediately lifted back into the Fowler position. The vomiting ceased and the cerebral symptoms disappeared for which symptoms had also been prescribed a hypodermic injection of morphia. However, there was no further vomiting. She was then kept in the Fowler position for three weeks and there was no recurrence of the cerebral symptoms. She made a rapid and perfect recovery. The question has arisen in my mind whether there was not some entrance of bacteria which in some manner contaminated the wound during the operation but which was not manifest until the patient was taken out of the Fowler position. At any rate whatever the cause was, whether due to local absorption or not, it had ceased when the patient was in the Fowler position and recurred when absorption again took place through the diaphragm instead of through the slower absorbent route in the lower portions of the abdomen.

## REPORT OF A CASE OF CEREBRAL LUES.

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*By J. E. Courtney, M. D.,  
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The following case illustrates many symptoms of cerebral lues, and believing that the full clinical report of such a case in itself would be of interest, I have not gone at all into the citation of authorities from the literature of brain syphilis.

The subject of this report was one, *Thos. B.*, white, age 24, single, a cook, who had also done prospecting and mining. He presented himself at the clinic for nervous diseases, University of Denver, about the middle of December, 1901.

His family history was negative as to any possible bearing on the case in hand. His personal history showed no serious illness in childhood. He had been intemperate only occasionally in the use of liquor and tobacco. About a year previous to the date of his coming to me he was thrown from a buggy and struck on the left temple; was only dazed for ten minutes and then continued what he was doing when the accident occurred. He admitted having had gonorrhoea twice, from which he had recovered. He denied any knowledge of ever having contracted syphilis, but recalled that between five and six years previously he had had a small sore on the glans penis, and it occurred, or was suggested to him by a companion, that it might be a chancre; but it was so small and disappeared so quickly that he abandoned the idea. A year later he had some soreness and swelling in the inguinal region, but no suppuration, no eruption, no more definite evidence of specific infection. In proof of his good general condition he stated that four years before he had passed an examination for enlistment in the United States army and went with the Rough Riders to Cuba.

His account of his present trouble is as follows: Two weeks before I saw him he had gone to the ophthalmological division of the clinic, where I learned that his pupils had been found

equal, the right only, normal to light, both to distance. He described gradual failure of vision in the left eye for nearly a year, which had been blind for several months, but with little pain till three days before going to this clinic, when pain and photophobia caused him to seek relief. The left eye was tender, tension increased, slight ptosis, eye-ball congested, partial detachment of the retina, retinitis and iritis. Calomel and soda had been ordered and later salicylate of soda. He stated to me that antedating by two or three weeks the decided blindness of the left eye he had noticed in trying the vision in it that he could see objects to the left of the left eye, but not to the right—unilateral temporal hemianopsia, or lesion of the nasal portion of the left optic nerve at the chiasm, or between it and the retina. It is more likely, however, that the symptom now present, partial detachment of the retina, caused the phenomenon of hemianopsia, as the other indications were those of a cortical irritation, rather than of a central or basal lesion.

The occasion of his coming to the neurological division of the clinic was that one evening between six and seven weeks previously, while in a restaurant with a friend, he had had a fit. He first noticed and was perfectly conscious of, a jerking of the face and twitching of the muscles of the left arm; he thinks he was aware of this for a minute or more, then lost consciousness. His friend told him afterwards that he was stiff, jerked and fell out of the chair, but got up in five or eight minutes, went out into an alley and attempted to take off his clothing. The patient remembers nothing of this, and came to himself on the street with his friend. He estimates the time of total unconsciousness at twenty minutes. He has not since been able to recall anything that transpired. The day preceding this attack he was very sleepy, and for two days after he slept almost continuously day and night.

His immediate condition showed a rather dull expression and slow speech, but no failure of articulation; pose and station normal, gait not ataxic, but lacking in elasticity and quickness. The only symptom of mental disturbance was an imperative fear and foreboding of another fit and anxiety to be assured that this could be prevented. There was no decided reflex nor a vasomotor disorder. He was given potassium iodide and inunctions of mercurial ointment. He returned two days later,

said he had slept from three in the afternoon of the day he came to the clinic to noon of the next day and felt very drowsy at the time of this return. Five days later he said he had felt dull and somnolent since his last visit and several times had had shifting, fleeting jerkings of the muscles of the arms and legs. Examination of the urine showed excessive urates, hyperacidity, specific gravity 1029, no albumin nor sugar. No other fit had occurred and the patient was somewhat reassured. About this date, Christmas of 1901, the patient disappeared from the clinic. Six weeks later, in February, 1902, he came again, and said that he had been in the county hospital for five weeks. He related that he had had another, the second, fit there in the night; also that in a delirium he had jumped out of a second story window on one occasion and on another had escaped and run a block or two from the hospital under the idea that he was being killed. In proof of these assertions he showed a recent scar on his shoulder. He says that when he became conscious after the last attack of delirium he found himself back in the hospital in the division for the insane and was being restrained from violence. It appears that these attacks were seizures of fulminating delirium, rather than the furor following an epileptic fit. From the county hospital I learned that he had a specific iritis when admitted, about Christmas, 1901: that while there he had two attacks of delirium, in one of which he jumped out of a window and was for a time in the ward for the insane. At this time, about the middle of February, 1902, he felt fairly well. The left eye was better as regards pain and inflammation, but was totally blind. He was still very fearful of another fit. The inunctions of mercury and the potassium iodide were continued. Late in February he was taking a dram of the latter daily and felt so much better that he went to work.

On April 16, 1902, I exhibited the patient and made a short report of the case at a meeting of the Denver and Arapahoe Medical Society at the Brown Palace Hotel.

Early in May he again came to me, saying that he had had some return of symptoms, diffused muscular twitchings and feelings of intense anxiety, as if he were going to have another fit. He was pale, distressed and tremulous. I gave him some 40-grain doses of potassium bromide to take at night and once a day, if necessary. He had discontinued the iodide for



several days and it was renewed. I also gave him at this time hypodermatically between the shoulders, one-fortieth of a grain of bichloride of mercury for ten days. The only untoward symptoms of these measures were slight salivation and some diarrhoea. During May I saw him occasionally; he continued to work, took the iodide and at intervals used mercurial ointment. During the six months from the time I first saw him until he left town on a prospecting trip he had only the attacks described, an epileptic fit, and two short attacks of furibund delirium, during which he injured himself and might have injured others.

To summarize the points in the case which seem of especial interest: First: an unrecognized specific infection without definite secondary symptoms. Second: tertiary symptoms four years later, shortly after a slight trauma and in a year culminating in a left retinitis and iritis, causing blindness of the left eye, and at this time an epileptic fit, preceded and followed by several periods of profound and prolonged sleep, the fits beginning focally, suggesting a gumma in the right motor region. Third: two attacks very near together of delirium with violence and several times very distressing premonition of other attacks. Fourth: the interesting questions whether so slight a trauma started into activity the latent infection and whether an original anti-syphilitic course would have forestalled such late effects.

Since writing the above, on the last day of April, 1903, this patient presented himself at my office. He stated that since leaving here he had been prospecting in Old Mexico, that in August of last year, that is about eight months ago, he had had another fit, beginning with spasm of the jaws, and was unconscious some twenty minutes. Since then he has had no further trouble and is now in excellent health, weighing 40 pounds more than when he was ill and 20 more than he has ever done before. The left eye is blind, considerably atrophied and somewhat tender to pressure. After having the convulsion last August, he had his prescription for the potassium iodide refilled and has since continued it with more or less regularity.

## THE SPHERE OF SUGGESTIVE THERAPEUTICS, WITHOUT INDUCTION OF HYPNOSIS, IN THE TREATMENT OF PSYCHOSES.

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By J. M. Keniston, M. D.,  
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One difficulty that confronts us at the outset is the fact that in the vast literature and numerous discussions on the subject, very few writers differentiate closely between hypnosis, and suggestion without hypnosis. Some are adherents of the Charcot, some of the Bernheim school; some are opponents, and some are skeptical and even prejudiced. The proper and truly scientific attitude one should adopt today "should be neither one of skepticism nor credulity, but simply of expectancy." (Gray).

We must also bear in mind the hostility of a part of the laity towards this form of treatment—a hostility fostered by an inadequate conception of the subject.

The writer follows Kraepelin, Robertson, and others, in the belief that *verbal suggestion*, as practiced by Bernheim and his disciples, is the most appropriate and least dangerous method thus far known, and since January 1st has not once attempted to induce sleep, prior to suggestion, although he has often suggested to his patients to sleep, with some success.

Excluding as foreign to our present purpose, all questions of preventive treatment of psychoses, we will adopt the following classification as a working basis for treatment by suggestive therapeutics:

1. Cure.
2. Improvement.
3. Treatment of individual symptoms, as fixed ideas, delusions, hallucinations, bad habits, etc.

4. Conservation of the residuals of mental and moral faculties, and prevention of further deterioration.

We must keep steadily in mind the fact that suggestion is to be used as an adjuvant to such other treatment—rest, occupation, diversion, drugs, etc., as may be indicated in each case. We cannot yet, if ever, expect an antitoxin for each psychosis, nor even the limitation to a single drug or method, to the exclusion of all else. As in typhoid, so in neurasthenia or manic-depressive insanity, we simply endeavor to help the patient to recovery—which often may best be done by absolute rest, nutrition, and baths, which are themselves powerful therapeutic agents.

In our efforts in behalf of our patients can we expect any good to result from suggestive therapeutics? The writer firmly believes that we can, looking upon suggestion as simply one mode of the “moral treatment” which is recommended by all authors, and supposed to be practiced in all institutions for the care of the insane. The skeptical objector may say that patients might recover or improve without suggestion, but the same objection would hold against the employment of any drug or remedial measure. Even now most of our diseases are treated more or less theoretically, and each must decide for himself whether any special theory or mode is in accord with the latest advances in medical and psychological fields. Let us first consult Kraepelin, one of the foremost modern psychiatrists:

He says<sup>1</sup>: “In recent years the astounding data of suggestive influence in hypnosis has opened a very alluring prospect for the psychic treatment of insanity. When one succeeds in this way in obtaining an almost absolute domination over the *perceptions, thoughts, and will* of a man, not only momentarily, but even for a long time, and even without his knowledge, such a method can hardly receive adequate appreciation from the psychiatrist on whom depends the removal of morbid symptoms in all those fields. Unfortunately, however, these expectations have thus far been only slightly justified. It is usually easy to subject sane people to hypnotic influence, and thus relieve them of every possible pain and discomfort, while insane patients *mostly* prove inaccessible to it, since the force of suggestion is evidently less than in normal conditions, apparently on account

of the frequent disturbances of *attention* and vivid auto-suggestions. For these same reasons it is not only more difficult to hypnotize the insane, but the physician's influence is almost never as efficacious and tenacious. For instance, it is not possible to eradicate, in hypnosis well-rooted delusions, which we may regard as auto-suggestions to a certain degree. On the other hand, illusions and disturbances of appetite and sleep seem to be amenable to hypnotic treatment to a certain degree. Similarly, many a complaint that arises from the deprivation of alcohol or morphine may be removed with surprising ease; and besides that the command of the hypnotizing physician becomes a correspondingly powerful, though invisible, ally in the fight against the deeply-rooted appetite.

We naturally first turn to the application of suggestion to those forms of insanity in which, according to experience, psychic agencies play a dominant rôle in the disease-picture in hysterical and neurasthenic disturbances. Here undoubtedly it is occasionally possible to obtain surprising results, as we learn from the show cases of the "magnetic cure;" on the whole, however, hypnotic treatment seems to be of special benefit in those forms of these diseases in which, in contra-distinction to the nervous troubles, the real psychopathic symptoms stand in the background.

Here, moreover, hindering auto-suggestions frequently occur, and there is always danger of developing auto-hypnotic conditions, although I am convinced that this danger can be completely avoided by great skill and appropriate methods of technique on the part of the physician.

In the remaining forms of the insanity of *degeneration*, especially in states of *fear*, and in compulsive insanity, *permanent results* can be obtained only now and then, and only with the utmost patience, while the results are usually transitory. Moreover, the contrary sexual instincts, which have hitherto been deemed incurable, have in recent years been treated by suggestion with some benefit.

But if the working sphere of hypnotic influence in mental diseases be considered, even today, as very limited, as might naturally be expected, still, from the results already obtained, the alienist should be forcibly impelled to familiarize himself with this method of cure, even if it be only to prevent trouble



from the use of unsuitable or improper methods. The most appropriate and least dangerous of the methods thus far known is undoubtedly that of *verbal suggestion*, as practiced by Bernheim and his disciples. For its complete comprehension a study of his work is essential, the more so, as the entire procedure lays great responsibilities on the personal ability and presence of mind of the physician, and therefore can be acquired in detail only by study."

The latest writings on this subject are found in the Reference Handbook of Medical Sciences, Vol. 5, 1902, Section on Insanity.

Dr. Theodore H. Kellogg says: "Hypnotism is not recommended in any class of cases, but therapeutic suggestion of ideas by the physician seconded by nurses may favorably influence the thoughts and conduct of patients, and likewise placebos are of occasional advantage in mental therapeutics."

Dr. William A. White says: "Hypnotism may be of some value in cases (of chronic alcoholism) which exhibit a marked hysterical diathesis."

Dr. William E. Fisher says: "Hypnotism is of value (in hysterical insanity) but it should be borne in mind that its use is apt to establish an undesirable dependency of the patient upon the physician. In mild cases *suggestive therapeutics* is of value in overcoming *individual* hysterical symptoms, such as *paralyses, sensory disturbances, and tremors*."

Dr. A. R. Diefendorf says: "Hypnotic suggestion may help in relieving insomnia and imaginary complaints (in circular insanity). In hypochondria one may depreciate the alleged sufferings by the aid of suggestive therapeutics. Indeed, this method of treatment offers the greatest hope for permanent improvement.

"In compulsive and impulsive insanity treatment is limited to physical and mental training and *suggestion*. The value of suggestion and hypnosis has been questioned by some who hold that these psychoses are absolutely incurable. There is, however, no doubt that suggestion is of value in those cases occurring during acquired neurasthenia, or during convalescence from acute diseases in which degeneracy is not so prominent a factor."

Diefendorf also says, in the article on "Contrary Sexual Instincts": "Treatment is more hopeful in acquired homosexuality, in which masturbation plays such an important part. Here, besides attempting to improve the general nervous condition, and the establishment of a routine in the physical and mental life, an effort should be made to dispel the homosexual feelings and impulses by means of hypnotic suggestion. This is first directed against the increased sexual excitability and masturbation, next against the insensibility of the patient towards the opposite sex, and a tendency to hetero-sexual intercourse. The hypnotic influence is acquired slowly."

Dr. George M. Robertson, at that time senior assistant to Dr. Clouston at Morningside, published an article on "The Use of Hypnotism among the Insane" in the *Journal of Mental Science*, January, 1893. He used practically Bernheim's method, after some study in the wards of the Charité, Paris, (Luys) the Salpêtrière (Voisin) and Nancy. He concludes that hypnotism has a sphere of usefulness among the insane. His most satisfactory results were obtained in some cases of extreme maniacal excitement, without mental confusion or incoherence, in which he succeeded in putting the patients to sleep, or in inducing them to take hypnotics voluntarily, to which, in the waking state, they made the most determined resistance. A large proportion of the insane are refractory to hypnosis. He summarizes the indications for its use as follows:

A. As a direct therapeutic agent.

1. In insomnia.
2. As a sedative in excitement.
3. To dispel fleeting delusional states, and the minor psychoses.

B. For purposes of management.

1. To overcome the morbid resistance of patients for their own benefit, as taking food, medicine, rest, etc.
2. As a substitute for restraint.

Robertson found a certain class of "comparatively sane epileptics" very susceptible to hypnotism in the sane periods, for dispelling pains, confusion, dullness, etc. He insists that suggestions should be very clear, simple, and precise, to avoid trouble. He once told a woman whom he relieved of rheumatic pains that on waking she had to run *up* and *down* the hall,

meaning by this only *once*. She, however, ran up and down for several hours.

Dipsomania, alcoholism and the various psychoses developing on an alcoholic basis are by many considered to be peculiarly susceptible to benefit from suggestion, and I have found a record of many alleged cures, or great improvement, e. g., Rybakow, Mason, Osgood, Forel.

J. Milne Bramwell, in an interesting article in *Brain* for 1899, Vol. 22, p. 141, gives a list published by Forel in 1891, of the following diseases which responded best to hypnotic treatment: All forms of hysteria, including hysterio-epilepsy, neurasthenia, psychical impotence, sexual perversions, alcoholism, morphinism, nocturnal terrors of children, chorea, enuresis, insomnia, headache, neuralgia, stammering, nervous dyspepsia, constipation, anorexia, menstrual disorders, chronic muscular and articular rheumatism, to which Bramwell adds vicious and degenerate children, nervous "tics," masturbation, and blepharospasm (Berillon); obsessions (Liébault, Schrenck-Notzing, Mavrokakis, etc.) and insanity (Voisin, Répond, Robertson, Woods, Smith and Myers, (Bethlem). The entire article will well repay perusal.

Bramwell elsewhere<sup>2</sup> says: "As far as my experience goes the employment of hypnotism by medical men who are acquainted with the subject is absolutely devoid of danger. I have hypnotized hundreds of persons of both sexes, and of all ages from early childhood, upward, occasionally repeating the process almost daily for months. Some of these cases were actually insane, while in many the mental condition was far from stable. I have never seen any unpleasant or evil after-effects, either mental or physical, even of a trivial nature."

With equal knowledge and skill, waking suggestion should be equally free from danger.

Dr. Edwin A. Down says: "Direct suggestion may operate in some instances. Physicians often unconsciously practice 'suggestion.' The moral treatment of the insane is only one of many attempts at direct suggestion. Functional disorders are the only ones responding to suggestion. Among the insane the difficulty lies in fixing the attention of the patient."

Dr. Frank, of Munsterlingen, at the congress of alienists at Stuttgart, November 1902, read a paper on the Remedial Value

of Hypnosis<sup>3</sup> (Suggestive Therapeutics). "This treatment is essentially differentiated from all others in that it is not material—it cannot be injected, for example; its proper application can only be made by a physician and this physician needs not only a very special training, but a very special capacity. He must be a good diagnostician, not only in general diseases, but also in neurology and psychiatry, should be familiar with psychology and psycho-physiology of the normal and diseased brain, and in addition should possess an intuitive skill and adroitness, a capacity for concentration, rapid and sound observation and combination, and above all persistence. The lack of these qualifications, which, like the facile hand of the surgeon, might be called artistic, precludes success. When Forel said, alluding to the incredulous and scoffers, 'Test before you judge,' he should have added, 'if you are capable of it.' The methods of hypnosis and suggestion should be taught in our universities and clinics and polyclinics provided for their application, to the great advantage of both patient and physician." Frank relates three cases in which suggestion with hypnosis was successful, viz:

1. Exhaustion psychosis (amentia?). Sleep was induced by *waking suggestion*, and later hypnosis with suggestion was used to increase appetite and combat individual symptoms. Recovery after fifteen days at hospital.

2. A boy of eleven years passed faeces every forenoon without knowing it. Hypnosis here enabled us to recognize the origin of a functional disturbance and effect a cure.

3. Case of hystero-epilepsy. Hypnosis was easily induced by *verbal* suggestion. The patient recovered after a few treatments.

Frank quotes a case of Von Speyer's, where after an illness lasting six years, suggestive treatment induced a man to work, thereby improving his condition, which led to his discharge and fitted him to resume his position as a master carpenter. Frank concludes that the curative value of suggestive therapy is undoubtedly established for a series of psychogenic diseases, and those somatic disorders which are influenced by the mind. Its limited extension is due to adverse criticisms and the particular preliminary conditions which its comprehension and application demand. Universities should promote the study of psy-



chology, psycho-physiology and suggestive therapeutics, not only for the relief of patients, but for the benefit of physicians.

Krehl, in the discussion of Frank's paper, defended internal medicine against the reproach that it concerned the organs only, and spoke of the great interest shown in psychotherapeutic problems by Liebermeister and his followers. Reiner said: "If we recall Nussbaum's words: 'Wounds heal better when armies are victorious' we see that in internal medicine psychic influence, with or without consciousness, plays a great rôle in our entire medical activity: the more so as we find psychic symptoms in a large percentage of internal diseases. We cannot separate internal medicine and psychotherapy, in the overwhelming majority of cases will succeed with *waking suggestion*, reserving hypnosis for those cases in which other measures fail, and there are weighty reasons for remedying disturbances." He related a case of hysterical retention of urine, where, after nine weeks of ineffectual treatment by electricity, hydrotherapy and gynecological measures, a cure was effected by three hypnoses. No recurrence of symptoms after eighteen months.

A commission, consisting of Drs. Mendel, Gock-Landsberg, Munter and Aschenborn, has recently reported as follows: "As a matter of course hypnosis is of no value in the cure of organic lesions. Alleged cures of epilepsy were due to incorrect diagnosis. Hysteria can only be cured when we succeed in rendering the patient capable of withstanding the heightened susceptibility, and in such a disease, a remedy which heaps suggestion on suggestion, is naturally of no service. Functional mental diseases are as a rule especially inaccessible to hypnotic treatment.

"It is far different in the treatment of single symptoms of disease, as there is no doubt that *waking suggestions* and hypnosis can dissipate the most varied disease symptoms. The results are due to the skill of the suggester, the external condition, and the suggestibility of the patient."

Dr. F. K. Hallock (Cromwell Hall) says: "In order to reach a certain class of patients, who, by reason of peculiarities of temperament and idiosyncrasies of character, are unable to live at home or to maintain a happy and normal relation with the world at large, and to train them to correct habits of thought

and action, especially in the direction of optimism and altruism, the inherent faults and deficiencies must be pointed out and a systematic course of mental effort must be inaugurated in the life and purpose of the patient. The correction or eradication of such imperfections of the personality can only be accomplished by direct personal influence and the most sincere and perfect understanding between the patient and the physician."

In a recent discussion of suggestive therapeutics he also said: "People in America are less susceptible than those in European countries, as they have less reverence for physicians, while on the other hand auto-suggestion is more common here where people are more curious and introspective." Hallock did not approve of hypnotism as a general practice, but thought that "much might be done by waking suggestion to effect a readjustment of the mental attitude."

What Dr. Hallock does in neurasthenia and allied disorders is admirably adapted to the treatment of psychoses in general, i. e., personal influence and educational methods plus hygiene, proper food, water externally and internally, exposure to sunlight, exercise, rest, etc.

In regarding the prospect of recovery from a psychosis those who accept Kræpelin's views at once exclude as absolutely incurable in the present state of psychiatry the following psychoses: Cretinism, Korsakow's disease, the paranoid forms of dementia præcox, dementia paralytica, dementia senilis, organic dementia, paranoia, epileptic insanity, congenital neurasthenia, imbecility and idiocy. In these, however, suggestion may effect some practical results in single cases by enabling patients to control morbid emotions and impulses, correct bad habits, etc. Paranoiacs are universally regarded as inaccessible to either argument or suggestion, because of the more or less systematic way in which their delusions are built up, and their ability to reason correctly from false premises (hallucinations for example). Possibly suggestion has not been persisted in long enough, and we may yet cause delusions to fade, or at least prevent their leading to dangerous actions. At any rate, we should make an effort in all the above psychoses, the more so as a mistake in diagnosis is possible.

In our second group we will include cases in which there is a certain percentage—greater or less—of recoveries, viz: the in-

fection, exhaustion and intoxication psychoses, myxoedema, melancholia, hysterical insanity, traumatic neuroses, and constitutional psychopathic states. Thus far the best results have been obtained in acquired neurasthenia, chronic alcoholism, and contrary sexual instincts, but the drug habits present a large field for effort. Time will not allow me to quote from the extensive literature of the subject, but I will allude briefly to a discussion on the study and treatment of alcoholism at the New York Academy of Medicine.<sup>5</sup>

Dr. Braunlich: "The mental treatment of alcoholics is very important. The influence of suggestion must not be lost sight of."

Dr. Quackenboss. "Hypnotism is an efficient remedy. The consent of the patient must, of course, be obtained, otherwise he will not respond to suggestion."

Dr. Crothers: "Suggestion with or without hypnosis is very useful."

According to Dr. Starr, a certain amount of *moral suasion* seems to be of much more service than anything in the way of medicinal treatment. Most of these individuals are neurasthenic, and if their neurasthenia can be improved their power to resist the drink impulse can be augmented. Starr confessed that the only reformed drunkards of whom he had knowledge were those who had been saved, not through medical, but through religious influence.

Dr. Knopf approved of moral suasion, arguments and hypnotic suggestion. "Suggestion plays a large role in the Keely and other 'cures.'"

Dr. J. Milne Bramwell says: "During the past ten years I have treated 76 cases by hypnotic suggestion. Results: recoveries, 28; improvement, 36; failures, 12. Important points: the patient must be willing to be cured; susceptibility to hypnosis is a varying and important factor; begin treatment of dipsomania at commencement of a period of quiescence, aiming to prevent subsequent attacks; suggest a distaste for alcohol; strengthen the *will* of the patient."<sup>6</sup>

Our third and last group includes the hebephrenic and catatonic forms of dementia praecox, and manic-depressive (periodical) insanity. In the hebephrenic form, according to Kraepelin, 8% apparently recover, and in the catatonic form 13%,

but at the Connecticut Hospital for Insane, during the four years ending Sept. 30, 1902, we had only 2.06% and 6.86% respectively of recoveries, while there were discharged as improved during the same period a little over 12% of hebephrenics and 15% of catatonics. These results should encourage us to renewed and persistent efforts in this line of treatment. As in a given case it is impossible at present to foresee whether the patient is liable to recover, and as in our experience some patients whose condition seemed hopeless have recovered sufficiently to go home and become self-supporting, it is evident that suggestion, supplemented by education, occupation, physical treatment, etc., may increase the number of recoveries or improvement, and in the remainder retard to a greater or less extent the deterioration which inevitably results without such efforts. At the present time I have attained some good results, from verbal suggestion, in a woman who for years had apparently been completely demented (filthy, noisy, destructive, violent) and absolutely unfit to associate with other patients. She is now seldom noisy, is less destructive, can fix her attention for brief periods, and has occasionally performed some simple work. If our attendants can be trained to apply simple suggestion, under our direction, they will be of great service in assisting us, since it is evident that in our over-crowded hospitals the physicians cannot find time or strength to treat more than a few cases at a time.

In manic-depressive insanity Kraepelin does not give any definite figures. His prognosis in maniacal states is favorable, but the course is protracted; in hypomania and delirious states favorable, with a few deaths in the latter; in depressive states, favorable, with gradual improvement; and in the mixed states unfavorable. Of course recurrences will occur in the same or some other form, from one to many times, if life is prolonged.

At the Connecticut Hospital for the Insane, from the adoption of Kraepelin's classification Oct. 1, 1898, to Sept. 30, 1902, in the *admissions* during that period we had the following results:

|                        |     |            |
|------------------------|-----|------------|
| Maniacal states.....   | 55% | recovered. |
| Hypomania.....         | 60% | "          |
| Delirious states.....  | 60% | "          |
| Depressive states..... | 59% | "          |
| Mixed states.....      | 67% | "          |



In addition 15% were discharged improved, 6% stationary, and 11% died. In manic-depressive insanity waking suggestion may be of service in promoting sleep, reducing excessive pressure of activity, fixing the attention, persuading to eat, to take medicine, etc., in the maniacal and mixed forms; while in the depressive states it may help to encourage, cheer, and arouse energy.

In the treatment of individual symptoms of the psychoses all writers, even those who are sternly opposed to hypnotism, seem to agree that waking suggestion is of more or less benefit. While all successful psychiatrists employ it, either by intention or unconsciously, either directly or indirectly, it seems to me that the time has come for some concerted action—some universal mode of application—some specific direction of effort. I would submit as a tentative scheme direction to these points:

1. Endeavor to assist patients to fix and concentrate their attention. This may be, and often will be a slow and tedious process. If we succeed, next,
2. Endeavor to substitute healthy and cheerful emotions for those of a depressive or irritable character.
3. Next try to strengthen an enfeebled will, or to correct disturbances of volition, as excessive increase or diminution of volitional impulse, etc.
4. Divert the train of thought into different paths.
5. Finally, endeavor to correct bad habits, delusions, and hallucinations.

In conclusion, after stating that I have purposely refrained from giving details of my cases, I would say that in addition to diagnostic skill, familiarity with psychology, skill, adroitness, capacity for concentration, rapid and sound observation, and persistence, the physician should not only feel confidence in his ability to help his patient, but should be imbued with sympathy—should not allow his praiseworthy desire to make a correct diagnosis overshadow the equally, if not more laudable, hope of either effecting a restoration to health, of relieving distressing symptoms, or at least of preventing deterioration. Shaler<sup>7</sup> says: "Great as are the blessings of sympathy in the direct aid it gives in mitigating the recurrent ills of the individual, they are of small account in comparison with the sec-

ondary influences it brings to bear on the conduct of the mind it controls. By going forth to others with all his strength the individual wins beyond himself. He escapes from the *prison* which the sense of *self inevitably* puts him into. Just so far as he sympathetically goes forth to other personalities, to his fellows of whatsoever estate, to his God, or to the nature about him, he is *emancipated* from selfhood, and above all from the fear of death. . . . . All real advance consists of gain in the altruistic motives."

As ego-centrism—only another name for selfishness—is one of the most fundamental and intractable symptoms in all psychoses, epileptic insanity excepted, any measure which will abate it, even if only to a moderate degree, is a valuable adjunct to our treatment. By fixing the attention, leading away from self, teaching self-control, broadening the mental and moral horizon and preventing mental atrophy; by engaging the patient in "rational conversation,"<sup>1</sup> by arousing his sympathy with others, and his interest in his surroundings, we are better able to assist him in his return to his original personality. In the use of suggestion for this end, "epigrammatic sentences, the shorter the better, and the more loaded with truth or stimulating thought, are frequently the most effective." (Buckley).<sup>2</sup>

<sup>1</sup> Kræpelin, *Psychiatrie, Suggestive Therapeutics*, Vol. 1, p. 329, 1899.

<sup>2</sup> N. Y. Med. Record, Vol. 54, p. 789.

<sup>3</sup> *Allgemeine Zeitschrift für Psychiatrie*.

<sup>4</sup> *Psychiatrische-Neurologische Wochenschrift*, Feb. 28, 1903.

<sup>5</sup> *Quarterly Journal of Inebriety*, April, 1901.

<sup>6</sup> On the Treatment of Dipsomania and Chronic Alcoholism by Hypnotic Suggestion. *Quarterly Journal of Inebriety*, April, 1903.

<sup>7</sup> *The Individual: a Study of Life and Death*.

<sup>8</sup> See Dr. Buckley's interesting and valuable paper in the Proceedings of this Association for 1902.

## THE HELP QUESTION IN ASYLUMS.

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*By Edward French, M. D.,*

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A spirit of unrest seems to be agitating the whole labor world. For the past five or six years this same spirit of unrest has invaded the insane hospitals and asylums of New England.

The help question has always been complex and not easily or satisfactorily settled. During the past five years there has been more restlessness and dissatisfaction among attendants, and this restlessness has extended even to the domestic departments of the State institutions for the insane. It was predicted that the establishment of training-schools would tend to increase the stability of nurses by stimulating in them a desire to continue in this line of work, but very many of them leave at the end of their two-years' course. It is not uncommon for a class to dwindle in numbers until at the final graduation not more than a third of those who entered the school for a training remain. The work necessarily is unpleasant, and some means must be adopted that will either shorten the hours of service, so that the monotony and unpleasantness will not be felt so keenly, or wages must be increased to make it an object for them to continue in the work.

There is almost no help to be obtained among the native population in the vicinity of the Medfield Insane Asylum in Eastern Massachusetts. Possibly its location is such that young people are drawn to the adjacent cities instead of to the institution. Were this fact proven, it would seem that a certain number of young men and women of indifferent quality and without the necessary energy to find employment in the cities would be left. And yet this does not seem to be the case in the immediate vicinity of Medfield. I have by force of circumstances been obliged to take help from two regions of the east.

Nearly all the young women who enter the asylum are from the British provinces, those from Nova Scotia predominating, while most of the men are from northeastern Maine. The intelligence offices of the cities of Boston, Worcester and Lowell are regularly searched during the summer for attendants and girls for the kitchen and laundry. The quality of help obtained in such places I believe to be poorer than from any other source. This seems to me evident, both from my experience and from the circumstances of the case. If they were good capable, reliable people they would not need to secure employment through such offices. During the summer the situation is aggravated, especially upon the opening of the beach houses and mountain hotels. Very many of the young women leave the institutions and secure pleasanter employment in these establishments. In consequence of this change in the early summer, we are obliged to accept many women that we should not otherwise engage for the duties of attendant. The percentage of change at Medfield grows larger every year. At first I believed this to be due to the environment and the conditions prevalent at Medfield, but found upon inquiry in other institutions that the same state of affairs prevailed there. All reasonable efforts have been made to retain the services of competent attendants and make their surroundings as pleasant as possible. Their hours of labor average less than ten and three-quarters hours per day. They are provided with a reading room, magazines and papers, with the use of a piano. They are given the use of the amusement hall several times during the winter for dancing parties, which are managed by themselves without interference on the part of the asylum officials. They have been provided with a nurses' home where the accommodations are elegant. In spite of this there is the same annual migration, with a constantly increasing percentage of change.

In talking with young women to get at their reasons for resigning, a majority say that they are tired of asylum duties and want a change. In addition to this very obvious condition, there is a spirit of independence which is stronger with women than with men. It is not an uncommon thing for an attendant, when reproved for some breach of discipline or advised to adopt some other method in her work, to reply as follows:



“Well, I am not obliged to work. I have a home to go to and my father says I can go there at any time.” In consequence of this independence of remunerative employment they become indifferent and not particularly anxious to do the best work. The men, on the other hand, are obliged to make a living for themselves, as their fathers do not encourage their living at home. Necessarily men make more effort to please and to observe the rules than do women.

For the past two sessions of the State legislature measures have been introduced to shorten the hours of attendants. This has come about in two ways. Attendants have complained to legislative members that their hours were too long. It is also believed that some members of the legislature, in order to increase their prestige with the laboring element of society, have introduced such measures on their own initiative.

The bill under consideration by the legislature now in session is entitled, An act for regulating the hours of labor of nurses and attendants in public hospitals and asylums, as follows:

SECTION 1. No nurse or attendant in a hospital, asylum or other place maintained by the Commonwealth or by a county, city or town therein for the care of the sick or injured or insane shall be required to be on duty for more than seventy hours in each week, except in case of an emergency; if in such case any such nurse or attendant works overtime, he or she shall be allowed a corresponding time off within the month next ensuing. This section shall not apply to nurses or attendants employed in private families.

SEC. 2. Whoever violates any provision of this act by requiring any such nurse or attendant to be on duty for more than seventy hours in each week, except in case of an emergency, or by failing to allow the corresponding time off within the month next ensuing which is provided for by section 1 hereof, shall be punished by a fine not exceeding twenty dollars for each offense.

SEC. 3. This act shall take effect upon the first day of January in the year nineteen hundred and five.

Previous to the introduction of this act in the legislature I had talked with my most intelligent employees, especially those who had been in the service the longest time. I found no general dissatisfaction with the hours. Their suggestion to me

was that the pay should be increased without change of hours, and this seems to me to be the most effective step that can be taken. It would attract to the institutions a better and more intelligent class, and, what is of more consequence and importance to the institutions, would give a stability to the service which it now lacks. A pride in the work and an interest and desire to continue in this service as a life employment would gradually form, and revolutionize in the proper direction the whole problem of securing good, stable, people. The impression that the patient receives of the hospital and his surroundings is largely made by the attendant. This is also true of his friends who visit him. They form conclusions regarding the care of the patient and the place largely from what the patient tells them and from their talk with the attendants or nurses. It seems to me that this is the weak point in the system of all of our State institutions. We should raise the quality and character of the attendants and nurses, and the way to do this, in my opinion, is to pay wages enough and make the work attractive enough so that a better quality of both men and women would come to the institutions.

The conditions are such in the institutions that they seem to warrant a radical change. Much more is required of attendants and nurses in the care of the insane today than was required twenty years ago. We are looking for more intelligence and tact on the part of our nurses and we are trying to educate them to the idea that the insane are sick people and require their sympathy and the utmost tact in dealing with them. While we have advanced considerably in the care of the insane, the rules and the conditions surrounding attendants in their work and lives have not materially changed. In other words, we have advanced only in one line.

It would be of no use to complain of the existing conditions, if it were not desirable and possible to make changes which would result in improvement, and after studying this question carefully for several years and talking considerably with the more intelligent attendants and nurses I have come to believe in the radical changes which I now advocate.

The building of nurses' homes for both men and women is a step forward in the right direction, but this step is not far

enough. We must go still farther. The building of these homes makes the present condition of nurses and attendants better, but it does not ensure their remaining for more than months or a few years.

The nurses' homes are a great improvement, but the life in them has still a measure of discipline and there is an air of restraint. It is not the natural home life of working people and it is but another kind of institution.

Arrangements must be made for providing tenements or cottages for the men so they can marry, have children, and fulfil the ordinary destiny of other men and women in their class. It is not natural for a man or a woman to accept a life of single blessedness and to thus cut themselves off from families and provision for the future as they are able to do in other avocations. The general hospital nurse has the inducement of large wages—very much larger than are paid in the State institutions. She can put up with single blessedness under these conditions. The asylum nurse and attendant has no such inducement. As a matter of fact a large proportion of the trained nurses from the general hospitals marry and relinquish their purpose of devoting their lives to suffering humanity.

I believe if the State institutions were to build convenient but inexpensive cottages provided with the ordinary conveniences and comforts, where male attendants could have a family and after their ten hours of labor in the wards could retire and enjoy the same privileges that even common laborers have, it would tend to increase stability and contentment in the service. When the question is considered from a standpoint outside of the institutions, it does not seem right that this class of employees should be denied the privileges that others of similar intelligence and surroundings enjoy. It cannot be expected that many young men, denied these ordinary privileges, will accept a position as attendant, and continue and look forward to it as their life work.

The women should also be provided with rooms in these same cottages to which after the day's work is done they can retire and live in the ordinary way. With increase of wages to both male and female attendants and nurses and the opportunity to live in the natural way our trouble in securing good, stable, intelligent help would greatly diminish.

## SOME ASPECTS OF THE FEELINGS IN MENTAL DISEASE.

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It was not until the middle of the eighteenth century that feelings, using the term in its broad sense, came to have any but a subordinate position in the tripartite division of the human mind. It will be remembered the orthodox view of feeling for a long time has consisted of the two simple affective qualities, pleasantness and unpleasantness. Lately, however, Wundt has propounded a very different view. "The colored woof of the sense qualities," he says, "is shot through and through with a warp of affection that is every whit as variegated; indeed, if the full qualitative tale is considered, feelings are even more numerous and manifold than sensations." It is not easy to predict at this stage of the inquiry to what length the classification may be carried, for already six dominant qualities have been discerned under the designations of pleasantness and unpleasantness, tension and relaxation, excitement and tranquilization or depression (Titchener). A similar classification is applicable to the more restricted phase of the emotions, and it is not improbable that the affective side of mind will ere long occupy a higher plane than it has previously held. Its relational position to will has long been clearly understood; and the dependence of intellection to its many-sided qualities, not so well-known, is rapidly being more fully accepted by observers. Herbert Spencer in speaking of "Feeling vs. Intellect," says: "Sensations and emotions are parts of consciousness, and so far from being its minor components they are its major components." "There has grown up universally," he goes on to say, "an identification of mind with intelligence. Partly because the guidance of our actions by



thought is so conspicuous, and partly because speech, which occupies so large a space in our lives, is a vehicle that makes thought predominant to ourselves and others, we are led to suppose that the thought element of mind is its chief element.\* \* \* The error is an enormous one. The chief component of mind is feeling."

The wide sphere that the feelings hold in mental medicine needs only to be mentioned to be appreciated. Among the arts of the alienist none are used so effectively in treatment as the multifarious moral means that have as their chief aim the arousing of healthful emotions in the patient and the dispelling of discordant ones. We use to advantage with our patients bright colors in flowers and pictures, cheerful tones in carpets and draperies, as well as the inspiring beauties of the landscape and the calming influences of quiet country scenes. We not only seek colors of emotional quality, but expressive music in its many adaptable forms. I once tried the subduing influence of the color blue upon maniacal patients. My experiment was attended with some success, which leads me to believe that a useful field, as yet unexplored, lies beyond the ken of this age in the emotional effects of vibratory light and sound on the eye and ear systematically applied in the treatment of mental and nervous diseases. There is much to consider in the James-Lange theory of emotion, the theory which, expressed in its crudest form, declares that we are happy because we laugh, and vain because we strut. While this sequence reverses the orthodox order of the process it shows the marvelous sway of body over mind, and the good results that may follow its application. One cannot smile and smile and be a melancholic any more than a villain, unless he be an arrant hypocrite. Some time ago in the case of a young woman deeply depressed by agitated melancholia, it seemed evident that the test of verbal substitution, suiting the word to the action, could be made with good effect. In lieu of the reiterated voicing of her grief, "If sister Sallie had not died, I would not be here," it was suggested that she be induced by the nurse to repeat after her many times a day the reassuring sentiment, "I will be brave, I will be brave," with appropriate intonation and gesture and with the persistence that commonly accompanies a practice lesson in music. Doubtless much of the benefit of medical calis-

thenics is due to the fact that the rhythmic movements of the drill accord with the measured cadence of the music, while no less potent is the influence of the recurrent attitudes of the head, limbs and body, expressing cheerfulness, hope, courage and other expansive feelings; especially if the exercises are given in a pleasant gymnasium before an enthusiastic instructor, who injects into the figures the spirit of play with plenty of mirth and laughter. This physical attitude begets corresponding emotions which react happily on the organic sensations, round thus completing the circuit of reaction that in its recurring of excitation lifts the invalid to the plane of restored health.

Among the emotions of the quality of pleasantness there are many that find physical reverberation in laughter. As alienists, we are interested in any of these forms of expressed mirth that may be morbid. It is a well-known law of mind that the emotions find most facile bodily expression in the action of those muscles which lie near to the source of innervation and are readily functionized by nervous discharge. Hence the sensitive mirror of the human countenance. Besides the laughter which is the exponent of immediate joy and present satisfaction, there is much of an abnormal kind which is the sole result of reflex action attended by little or no feeling. The ancients mention a pathological laughter caused by eating an herb grown in Sardinia, which was said to screw up the muscles of the face spasmodically, giving it the appearance of laughter, from which the expression "sardonic laughter," has been derived. Attacks of hysteria, as we know, are often attended by states of uncontrolled laughter of a reflex nature. Some Arctic travelers speak of laughter induced by extreme cold, and the same incident has been noted by persons on first tasting food after prolonged starvation. Laycock gives an interesting case of reflex laughter due also to physical causes, in a lady, who, in a hypnotic state even during the singing of serious hymns, broke into uncontrollable laughter, when the bridge of her nose was gently pressed. On cessation of the pressure the laughter at once came to an end and the countenance resumed its previous expressionless appearance. Young children as well as imbeciles frequently give vent to satisfaction by exaggerated smiles and laughter; in fact, before Goldsmith's time it was known that "the loud laugh spoke the vacant mind." This form of laugh-

ter comes under the designation of general vital feeling, having but little to do with definite ideas. A type of persons of emotional character known as "giggers," from their excessive laughter on all occasions, shows the instability of the emotions. It will be found that these individuals, who superficially appear to be the soul of good humor, have generally ill-tempered dispositions. The same ready discharge of pleasant moods will give way to unpleasant ones, making it seem a vice of inhibition rather than the blessing of a joyous nature.

The involuntary laughter of mild dementia is a curious phenomenon and one not always easy of interpretation. At first thought it seems discrepant that persons so affected should laugh at all when it is seen, as for instance in dementia præcox, that many of them are at the time in a most discontented and unhappy frame of mind. It is plain that a chief element, as in hysteria, is lack of inhibition, which is associated with other causal factors. Sometimes in the unhiinged machinery of the mind the whimsical vagaries of day-dreaming may be the exciting cause, or it may be a simple reflex of physical origin similar to those already given. In most cases, however, the physiological seat is in the state of the vegetative organs that take so important a part in the play of the feelings. As we know, the feelings are more readily expressed by means of the countenance and attitude of the body than are the ideas which are commonly dependent for expression on written and spoken language a less facile process. In addition to these modes of expression the feelings find outward vent in the distinctive channels of laughter and crying, which Oliver Wendell Holmes has humorously characterized as "wind and water power." In certain atonic states of the nervous system, in which inhibition is abolished or markedly diminished, as in the condition here spoken of or in states of hysteria, the feelings are as freely discharged through the exits of excessive laughter or crying as under different conditions unstable motor impulses issue into epileptic convulsions; in one case the discharge occurs with consciousness and in the other without it. The motility of the feelings like that of the fit is involuntary, being totally independent of the influence of ideas and volition. It seems probable, therefore, as stated above, that in most of these cases of mild dementia, where purposeless laughter is a marked symp-

tom, the tone of feeling of the organic sensations is the determining factor of the emotional discharge. In this connection may be noted the observation, which you frequently have occasion to remark, that in states of terminal dementia the emotions share in the ruin that comes to all of the higher mental processes, disappearing or diminishing greatly. It is impossible to frighten one who is wholly demented, or to evoke from him any expression of anger, joy, grief, or other emotion. Any one who has witnessed the chronic insane at the scene of a fire, has had cause for wonder at the helpless indifference exhibited by them: and the stampede of an insane audience is an event unrecorded.

Mercier has called attention to a fact easily verified in the wards of any asylum, namely, the incongruous relation often seen between the idea and the emotion in the insane. In some instances the degree of feeling that is experienced by the insane patient appears to be in excess, not merely of the circumstances that actually exist, but of those that are erroneously supposed to exist or that could possibly exist. The sustained lamentations that a melancholy patient frequently gives vent to are out of all proportion to the supposed circumstances, and to what would be justified by the situation, even so adverse as could be imagined in the most extreme degree. In like manner, also, the elation of the parietic is sometimes so unbounded that there could be no conceivable good fortune that would be an appropriate setting for his bizarre feelings. On the other hand, this incongruity is represented in the insane by a lack of expression of feeling not at all commensurate with the idea as it exists in the deluded mind. An illustration of this last phase was exemplified not long ago in a paranoic young woman who told with no adequate exhibition of grief that her father and mother, living in a distant city, had been done to death in the laundry of the institution and that she had seen their dead bodies carried out in bags on the way to the potter's field. This strange inconsistency was further shown the same day by the patient writing a letter to her parents, in which she made no allusion to this horrible idea, thanking them for a box of dainties that she had actually received from them by express on the previous day.



Feeling, which begins as emotion, if sufficiently nurtured, passes after due time into sentiment or disposition, termed by some authors, passion. Anger and fear are emotions which eventuate, if persistently encouraged, into revengefulness and cowardice. In like manner grief is an emotion that by continued morbid feeling may deepen into fixed melancholy. The deepest and most central current in human nature, says Hoffding, is the ruling passion, which is first aroused by hereditary tendencies and nourished and developed by those experiences that cause a repeated stir of feeling. It is a psychological law that while emotion is weakened by repetition passion is strengthened, hence the old saw, "ruling passion strong in death." The way in which the common experiences of life are first met by the youth in the development of the affective side of his nature, determines very fully the ruling passions of his mature years. In this may be seen the wisdom of subordinating in the training of children such malevolent emotions as envy, pride, fear, etc., to those which stand for unselfishness, self-respect and courage. As we have seen, emotion may develop into passion; so also it may arise in the current of passion, giving dramatic climax to it at times by lighting into flame ferocious instincts that lie dormant in human nature. This is sometimes seen when a murder, committed for self-ends, reveals in its brutal execution most unnatural details of crime. Recently the community in which the writer lives has been appalled by a murder of this nature committed by a youth just merging from his teens, whose passion for a life of dissipation impelled him to kill his mother and seriously wound his sister in a most revolting manner, for a trivial and senseless larceny. In the frenzy of his emotion, the cognitive powers of his mind were so overwhelmed that he did not remember many of the circumstances relating thereto. This is a frequent occurrence both in homicidal and suicidal attempts, when the subject, keyed to a high pitch, loses himself totally in the vehement tide of feeling. Giessen in an account of crime aptly says: "It is not to be regarded as a mere lying subterfuge, when murderers tell in their confessions that they were mastered by a fury or frenzy which deprived them of the power of thinking, and carried them away with ungovernable power, so they did not know at the time what they intended, and were afterwards unconscious

of what they had done. \* \* \* Not everything that occurs in the commission of a crime can be explained by the chief motive which led to it." It is not to be understood that all brutal murders are susceptible of this explanation, but some that may have been placed under the head of instinctive depravity may belong to this class. Persons of low mentality and poor inhibitory control are especially prone to disordered emotion.

In agitated melancholia, in which the content of consciousness is narrowed and distressing forebodings absorb the attention, it is seen after due time that the painful element of the morbid idea slowly dies out, leaving the patient, perchance, nearly as demonstrative as at first, but it is obvious that the acute suffering has subsided and that the restless activity is purely automatic in character. The patient, who before was reduced to a shadow and brought to the verge of collapse, now takes on flesh and his vegetative functions perform their task normally. He gives utterance, to be sure, to the same vagaries, but in his general aspect it takes only a glance to see that the spirit has gone out and the substance alone remains. How do we explain this change? Have we not here two sets of psychic conditions, one weakened by repetition, the other strengthened? The genesis of this type of melancholia seems to have its seat primarily in the disordered state of the cœnes thesis, which in turn arouses the morbid emotion on which the painful delusion is based. In time the feeling element having exhausted its overwrought energy by repetition fades away, and leaves the delusion to grow the firmer, stripped of the affective component that gave it birth. Somewhat analogous is the familiar experience of the fervor of love in the honeymoon. [This being a healthy rather than a morbid process, the delusive element commonly expressed by the phrase "Love is blind," need not concern us here.] Tracing the course of the affective element, it is seen as time elapses that the enthusiasm expends its force by repetition and the soul finally dies out of the passion, leaving the heart cold and indifferent to the former object of its affection. This is the natural result of strong stir of any other of the emotions as well as of love, such as fear, anger, grief, and joy, which are necessarily weakened by time, for the emotions, like other functions of the mind, are incapable of being exercised continuously at the top of their bent. If love be

based on respect and esteem, if at bottom there is true worth in the loved one, known and appreciated, then this affective quality of the love, when the reaction comes, deepens and broadens with the weight of added years. Again, it is often asserted that the physician is hardened in heart by the pursuit of his profession. It is a case involving this aspect of the affections that finds a similar solution. With increased experience of suffering the sentimental repulsion occasioned by witnessing pain in others loses with time its poignancy, and the man becomes deadened to the sights and sounds that throw persons untrained to a life of this kind into helpless alarm and fear. If, however, he be a true physician and a man of high principles, it will be found that while his heart grows stouter amid appalling scenes, there develops in him *pari passu* a tender sympathy for his fellow-man in distress, and a strong and abiding concern to do him good.

## PSYCHOTHERAPY.

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The fact that the mind has an important influence on bodily conditions is very well understood. The subject has been discussed by many able writers, yet it is of so great importance that it is always worthy of consideration and of re-consideration. It may be that this is especially true at the present time, when the knowledge of the physical means for the prevention and for the cure of disease has become so great as to divert the attention, in no small degree, from the potency of those mental influences which are, sometimes, still more important.

A distinguished philosopher has said, "In nature there is nothing great but man; in man there is nothing great but mind." It might be added that the mind constitutes the man; it makes him what he is; considered in its broadest sense, it comprises whatever in his being is not material; it builds up, controls and governs the body. Even when the physical man is asleep, or in a state of unconsciousness, the sub-conscious mind is always active; it keeps those functions, the integrity of which is essential to the continuance of life, in a state of activity; it continues, in some degree, to receive impressions from without; and these impressions may and often do become the subjects of cerebral activity.

How the mind may affect the body, in a state of health, the excretions, the sweat, the saliva, the appetite, the digestion, the catamenia, the capillary circulation—as in blushing, or in the pallor caused by fear—is too well known and of too frequent occurrence to call for more than a passing notice. In woman, parturition is often delayed by her anxiety for seclu-



sion and quietude during the great crisis; or her milk is suppressed, or is rendered poisonous by an accession of fear or of anger. The action of the heart is habitually more or less influenced by the emotions of fear, of joy, or of anger; and the effect on a heart that is weak or diseased may be such as to stop its action altogether, as in the case of the late Dr. John Hunter. The sudden blanching of the hair, through mental shock, is not of infrequent occurrence. The case of Louise Lateau is of especial interest, as an illustration of the influence of fixed attention on a particular part of the body. She was a devotee and had contemplated the tragedy of the crucifixion with profound attention and emotion. On Fridays she would lie on her back, with her arms extended, as in the crucifixion. Each afternoon, while she was thus lying in a state of deep religious absorption, the stigmata of the five wounds made their appearance. While this girl was, undoubtedly, a pronounced neurasthenic and of a hysterical temperament, there was nothing in her physical condition, nor in the general state of her health that would at all account for the occurrence of the stigmata. Their cause was mental and mental only. She was so closely watched by physicians, undoubtedly both capable and honest, that physical means of producing the stigmata could not have been employed without detection. Many similar cases have been reported. Sympathetic pain is not uncommon; as when a person experiences severe pain in some part of the body on seeing another person who seems to be suffering from an injury in the same location.

The influence of the mind on the body may be so profound and so persistent as to be a cause of actual physical disease. Fear often renders the subject especially susceptible to epidemic influences. Fright is not an infrequent cause of epilepsy. Fear of hydrophobia may cause the symptoms of the disease, although the subject has not been inoculated with the virus.

On the other hand, the agency of psychic causes in the cure of ordinary physical disease is very great; but at this point there should be a definite understanding of what is meant by the term psychotherapy.

Psychotherapy, then, as the term is used in this paper, is intended to include all the curative agencies in action which are not material in character; and also all immaterial extraneous

influences in so far as they act favorably on the mind of the subject.

In many, if not in most instances, psychic influences are intimately associated with material agencies; as with drugs, stimulants, diet, bodily exercise, occupation, condition of the air, altitude, climate, etc. But the associated material agencies are here so obvious, so obtrusive even, that they oftentimes receive the credit of being the real, the efficient agencies in the cure of the patient, when in fact their influence has been quite subordinate, if not entirely negative, or even prejudicial in character.

And so, in the treatment of patients who suffer from any disease whatever, it should be borne in mind that however well adapted the material remedies employed may be, the aid of the psychic forces should also be brought into use by every available means. To this end, the persons associated with the invalid should be congenial and of a cheerful temperament. The physician in attendance should be of a hopeful temperament and should be able to inspire his patient with hopefulness. His pains-taking care in making his examinations, the confident manner in which he states his conclusions and the minuteness with which he gives his directions may exert an important influence on the mind of the invalid and in no small degree promote his chances of recovery. Ignorant charlatans who have the ability to inspire their patients with hopefulness and confidence sometimes succeed in effecting a cure when learned and skilled physicians who lack this ability have failed.

All remedies that are really efficient in themselves may have and usually do have an added curative effect when administered to persons of intelligence and whose mental faculties are unimpaired. The expectation of a definite, favorable result adds greatly in bringing about this result. The strictness and particularity with which directions for treatment are given and carried out serves to stimulate the expectant attention; and this, in turn, stimulates the psychic forces to a state of activity. The hopefulness engendered by the fact that something is being done, whether by the administration of medicines, baths, electricity, massage, or any other suitable curative means aids in bringing about the desired result. While material agents may destroy organized, living, physical structures, they can never

repair nor build them up without the aid of the psychic forces as the builders.

Not only do the psychic forces aid material remedies in the cure of diseased conditions, but they are often efficient agents in themselves. As the expectation of a fatal result, on the part of the patient, may lead to that result; so encouraging assurances of recovery are often efficient in promoting recovery. An exercise of the will, on the part of the patient, may even overcome the adverse influence of the disease and an unfavorable prognosis combined. Skilled physicians sometimes depend upon the psychic forces alone in the treatment of their patients, stimulating hopeful expectation by the administration of substances that are entirely inert, as, for instance, in giving placebos for the relief of constipation. It has been found that motherless babies thrive better in the care of indigent women at their destitute homes than at hospitals where their food, surroundings and attendance are of a much higher order. The mental influence of the foster-mother on the baby, the mothering the baby gets, in the former case, more than counterbalances the advantages afforded by the hospital.

Cures are undoubtedly effected through the agency of what are called the Faith Cure, Mental Healing, Christian Science, and other agencies that act, in the first instance on the mind alone, and through the mental forces on the body. From time to time, healers make their appearance under whose mental influence sufferers from physical ailments seem to be cured; and some of them, undoubtedly, are cured. They leave their canes and crutches with the healer; they think that they are cured; they can now do what they could not do before, and this certainly constitutes a cure. And so, there can be no doubt that many of the pilgrims to Lourdes and to other religious shrines are really cured of their physical disabilities, and that these cures are effected mostly, if not altogether, through the influence of the mind. Their faith has healed them. If this faith, if this mental influence, can be brought into action without the intervention of the healer, without the pilgrimage to the shrine, the result will be the same. If the mental forces of the absent patient can be brought into favorable action, what is called absent treatment may be effective without the presence

of the healer, although in most cases the presence of an objective stimulant, as the healer or the shrine, is essential.

It is by no means to be inferred that all mental healers and Christian Scientists are dishonest, or are knowingly practicing a fraud upon the public. On the contrary, some of them have the most sublime faith in the efficacy of their methods; and it is largely because of this sublime faith on their part that their cures are brought about. They inspire their patients with something of their own hopeful enthusiasm and thus stimulate the activity of the real agents in the cure, the psychic forces of the patient.

The ameliorations and cures which are, undoubtedly, effected through hypnotism depend upon the same principle. In neither case is there any emanation from the agent to the subject. The agent simply stimulates the psychic forces of the subject to a state of activity. These forces alone effect all the physical changes that are brought about.

Perhaps the most striking illustration of faith in the efficacy of inert substances, as medicines, is to be found in the use of the higher attenuations of homeopathic drugs. A single minim of the tincture of any drug when carried to the thirtieth centesimal attenuation would suffice to medicate an amount of vehicle so enormous as to be quite beyond the power of conception. A globe one hundred million miles in diameter would suffice to contain only a small fraction of the supposed medicine that might theoretically be made from one minim of the mother tincture. The amount of the drug in each dose is of course correspondingly diminished. The material effect of a dose of this supposed medicine must be utterly inappreciable and without physical effect. And yet recoveries follow its administration; and physicians of a high degree of culture and of intelligence have faith in its curative power. If such medicine does have curative power, it must certainly be through psychotherapy.

If it be objected that such cures as are claimed to be effected by such means are not real cures, but either that the disease never existed or that the cures are imaginary, it may be replied that the variety of both disease and cure is quite the same as in analogous cases which are diagnosed by competent physicians and cured by means of material remedies.



And if it be objected that the psychic forces are too mysterious in their nature to entitle them to consideration, it may be replied that material remedies are no less mysterious in their mode of action. We know nothing of the fundamental grounds of their activity in either case.

Thus far no mention has been made of the psychic forces with reference to what more especially concerns the members of this Association—the treatment of diseases involving the integrity of the mental faculties. While in the treatment of mental diseases the favorable influence of certain agencies which act directly and immediately on the mind is understood and appreciated, it is very doubtful whether the full measure of their importance is always kept in view and the principles involved are put into practice. Nor is the reason for this far to seek. In former times insanity was thought to be a disease of the mind itself, a sort of demoniacal possession which needed to be exorcised rather than cured.

In opposition to this view, alienists have laid so much stress on the doctrine that insanity is simply an expression of disease of the brain that they have, to some extent, left out of consideration the psychic forces upon which the functions of the material body depend for their activity and their integrity. Moreover, the alienist has under his special care patients whose mental faculties are in a state of disorder; and who are consequently less amenable to psychic influences than those who are not insane. It naturally follows that physicians who are engaged in the treatment of diseases affecting the mind are, perhaps, more likely to neglect the psychic forces, as a means of cure, than are those physicians who are especially engaged in the treatment of physical ailments.

However, alienists do fully recognize the importance of psychic influences on the insane in certain particulars. Thus all are agreed that such patients should be removed, as far as possible, from disturbing mental influences; and that their surroundings, their associations, their occupations and their amusements should be carefully and intelligently adapted.

But much more than this is needful in all cases in which the mind is still responsive to mental influences. In order to attain the best results, as careful, individualized mental treatment should be prescribed and carried into practice as in the

case of material remedies. Just what this psychic treatment should be must, of necessity, depend not only upon the condition and requirements of the patient, in each case, but also upon the temperament, personal experience, aptitude and ability of the physician who prescribes and of the agent who carries the prescription into practice. In a general way, the following suggestions may be made, by way of illustration: A patient whose intellectual faculties are susceptible of improvement should be constantly in companionship with and under the influence of persons of sound mind; and these associates should systematically exert that influence by conversation within the sphere of the patient's intelligence, and by calling his attention to objectivities in connection with any occupations or amusements in which he may be engaged. It is not to be inferred that all insane patients should always be kept from companionship with other insane patients. On the contrary, such companionship may be so arranged as to make it a beneficial object lesson. Insane patients often perceive and understand that the ideas and acts of other insane patients are irrational; and, whether they acknowledge it or not, are led to suspect that some of their own ideas and acts may also be irrational. On the other hand, the intimate association of large numbers of the insane is without advantage and may be detrimental. This is especially the case when those who are associated are uncongenial, or when many sufferers from mental depression are kept in close companionship.

Schools and lectures such as are sometimes employed as substitutes for or as adjuncts to individualized methods of psychic treatment are of advantage, especially in the larger hospitals where individualized psychic treatment is difficult of attainment.

In the carrying out of a plan of individualized psychic treatment, the due exercise and stimulation of the moral faculties should not be forgotten. To this end, the patient may be interested and occupied in the care of animals, or in doing something for the pleasure or the benefit of others.

The highest and at the same time the most difficult sphere for psychotherapy is in the management of those cases of incipient or of convalescent insanity which are characterized by unfounded suspicions, hallucinations, or delusive ideas. And

here it is well to ignore, for the time being, at least, the doctrine that insanity is always and only a symptom of disease of the brain. It will be helpful, rather, to keep the facts clearly in mind that many cases of insanity have their beginnings in a brain activity which is due to mental causes; which, in the first instance, is entirely compatible with a condition of sanity; and that the continuance of this abnormal activity often results in a brain habit which it is beyond the power of the subject to control; that is, the psychic cause has brought about a condition of insanity; but that no change in the organic substance of the brain has taken place may be inferred from the fact that some of these patients seem to recover with great suddenness; almost instantly, indeed; and from the fact that they recover under the influence of psychic remedies alone.

The following history may serve to illustrate the causative influences and the psychic treatment adopted in a case of hallucinatory insanity.

Miss A., a young woman of neurotic heredity, but of good physique, good social position, and of good education, suffered a severe mental shock through social disappointments and infelicities. Her appetite became impaired, her sleep disturbed, and her power of self-control greatly diminished. A state of hysterical excitement with great mental depression supervened. After a little hallucinations of hearing were experienced. She heard voices by day and by night, talking about her, making vile accusations against her, and addressing her with opprobrious epithets. She insisted that the voices were real, that they came from different locations, especially from a room over her own, and demanded that her persecutors be removed. An examination of the places from which the voices seemed to proceed did not remove her belief in their reality. The irritation caused by the voices was so great as at times to throw her into a state of ungovernable rage, during which she would scream, slam the doors, throw articles of furniture about and make use of violent and profane language—acts which were entirely foreign to her normal habits. Although her appetite was not especially impaired, she had lost in weight and become decidedly neurasthenic. In addition to the usual psychotherapeutic treatment, removal from the original causes of mental disturbances with suitable occupations and amusements, such tonic

remedies were prescribed as seemed to be indicated. After this line of treatment had been followed for a period of time, without a favorable result, the following additional psychotherapeutic measures were adopted: She was informed that in many instances persons were annoyed by voices which had no existence; that if they were able to convince themselves, or could be convinced that the voices had no real existence the annoyance they caused would be greatly diminished, if not quite abolished. She was told of persons who have habitually heard such voices, but who suffered little annoyance from them because they fully understood the cause. She was also shown the printed history of such hallucinated persons, in corroboration of the oral statements that had been made. She was also told that she ought to give credit to the testimony of reliable persons who assured her of the non-reality of the voices; that the greater part of all she knew was not of her own knowledge, but was founded upon the testimony of others. In addition, the mechanism of hearing was explained to her, somewhat as follows, to-wit, "You see that I am now talking with you. You hear my voice, but only in this way. The words I am speaking to you are simply a vibration of my vocal organs. But it is not this vibration that you hear. This vibration of the vocal organs in turn causes the vibration of the air; of the drum of the ear; of the little bones of the ear; of the structures within the ear; of the nerves that lead from the ear to a certain part of the brain and finally of the cells themselves. If any of these had not been made to vibrate there would have been no hearing. But now that the cells of this part of the brain have been made to vibrate, you hear my voice. Now, if these cells, through habit or through any other cause, should vibrate in the same way when I am not speaking, you would seem to hear my voice just as you do at present. I cannot give you medicine, nor do anything that will stop these false voices. But if you will accept the explanation and the assurance I have given you I have no doubt that they will cease to annoy you; and, then, they may stop altogether. This was repeated, on occasion, when the patient was in a quiescent, receptive mood, and in a restful, recumbent posture; but no attempt was made to induce hypnosis. As was hoped, the voices soon ceased to annoy and after a little ceased to be heard altogether. With



the stopping of the voices, the other manifestations of mental disturbance passed away. The patient had recovered.

No mention has been made of hypnosis as a means of placing insane patients in a receptive state of mind, when an attempt is being made to influence their mental faculties; in part, because the result would be very uncertain and might be unfavorable; and in part because such individuals can rarely be hypnotized. They are usually so suspicious or are so much absorbed in their own ideas that they do not readily yield themselves to the required conditions. In lieu of this, a favorable mental influence may sometimes be exerted by advice given and suggestions made when the patient has fallen into a natural sleep, or is in the somnolent state between sleeping and waking.

While there are few insane patients who cannot be favorably influenced by psychotherapeutic methods, it must be admitted that the great majority of those who are under hospital care are not very susceptible to such influence; and yet, it is not unlikely that many of these last have at some time been more susceptible to the favorable influence of psychotherapy than at present. Indeed there is reason to believe that there are few incipient cases of insanity, of partial insanity, or of those in the convalescent stage which may not be benefited by carefully considered, tactfully applied, and thoroughly individualized psychotherapeutic measures.

Assuming, then, that psychotherapeutics might advantageously be employed with greater frequency and to a greater extent than has hitherto been done, it remains to be inquired what obstacles are to be removed and what measures are to be inaugurated to this end. It is obvious that the person who undertakes the practice of psychotherapy in a given case, in addition to being of a suitable temperament and to having made a careful study of the principles involved, should gain the entire confidence; and should be on terms of friendly, sympathetic intimacy with the patient. After having become thoroughly conversant with the history and mental peculiarities of the case, he should wait patiently for a favorable opportunity, when the patient is in an agreeable and receptive mood, and then exercise such special mental influences as may be within his power; repeating his advice, his teachings, or his suggestions as occasion may offer the opportunity. The time which

may seem to be lost in waiting is not really lost, if the agent is suited to the work in which he is engaged. His influence, while placing himself on harmonious terms with the patient, may be really no less helpful than his more systematic efforts. The exact methods to be employed in psychotherapy must of necessity be left entirely to the judgment of the practitioner. On the one hand the varieties in disposition, circumstances, education, mental capacity, and vagaries of the subject are almost infinite, and can be learned only by personal study; and on the other, the variety in the mental status and equipment of agents who will be suited to the work are equally great. However, in order to obtain the best results the agent should, at least, be equal to the subject in mental capacity, education, culture, and intelligence.

Naturally, the physician in charge would be the person best suited to put the methods of psychotherapy in practice; but in large hospitals for the insane the medical superintendent could rarely undertake this duty, on account of the time that would be required. The task might even be too great for the members of the medical staff. In this case it might be advisable either to increase the number of the medical staff, or to employ non-medical assistants who are especially adapted to this sort of work. Of course the duties of such assistants should be entirely distinct from those of ordinary nurses, attendants, or supervisors. While they should do their work under the general direction of their medical superior they should be allowed to choose their own methods and to carry them into practice without interference.

In a paper entitled, "The Constructive Forces," which was read before this Society a few years ago, a special reference was made to the immaterial forces through which and by which the body is built up and kept in a state of repair. It is the object of this paper to suggest a consideration of the influence which the immaterial, the psychic forces have or may have upon both body and mind in a state of disease. In pursuance of this object, reference has been made to the influence of the mind upon the body, in a state of health; to mental states as causes of ordinary maladies, and to their influence in the cure of these maladies; to mental influences, on the one hand as causes, and on the other as aids in the treatment of insanity;

and, finally, to some of the conditions which are required for the efficient practice of psychotherapy in the treatment of the insane.

#### DISCUSSION.

DR. DEWEY: I am glad to see this subject presented and hear a paper so suggestive and thoughtful as this of Dr. Parsons' is, and I think sometimes the medical profession needs a little "suggestion" on the importance of this line of treatment. There has been as a rule an indifference or even a hostility to this treatment which has come to be regarded as something irregular, something combined with deception, conscious or unconscious, honest or dishonest. Of course this treatment is especially liable to abuse and therefore it should be the more regulated and thoroughly studied. I am of the opinion that a part of the regular medical curriculum should be instruction in psychology, physiological psychology and pathological psychology. If such instruction were systematically given in the medical schools, I believe we should see a decided advance in the use found for the intelligent employment of these forces, for their value is undeniable. What we need at the present time is more light and more intelligent appreciation than this subject has heretofore received. Of course mental therapeutics is limited in its applicability and the cases which can be benefited by it are purely neurotic subjects. There are many individuals who, although neurotic and psychopathic, are well within the scope of such treatment, but persons who are pronouncedly insane are probably capable of being influenced by it only to a limited extent.

DR. MEYER: I should like to endorse what Doctor Dewey has just said and what Doctor Parsons has put before us and to add a plea for a conscientious study of the mental life of patients. I think that the great difficulty about psychotherapeutic work has consisted in the fact that physicians believe they can handle that work without any systematic methods of medical psychology, whereas they have long learned to realize that to make a good examination of a patient for physical purposes they must know the body and its functions very thoroughly.

If we become accustomed to examine our cases from the mental point of view as well as from the physical point of view, we shall get those means into our hands to enable us to employ psychotherapeutic helps without exposing ourselves to the objection that we are dealing with something approaching humbug. The main point is that we shall use system in the examination of the psychic symptoms as well as we do in the physical symptoms, and that a knowledge of the abnormal workings of the patient's mind is the foundation of a knowledge of the nature of the disease (i. e., pathology), and of therapeutics. That the mental attitude of the patient is quite important even in physical disorders, is a truism. I think homeopathy and other similar systems of therapeutics have shown that to everybody's conviction. I should therefore say that with a careful study of the patient on the psychical side we shall do justice both to the patient and to our scientific needs.

## THE PSYCHOLOGY OF EPILEPSY.

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Professor James says, "The definition of psychology may be best given in the words of Professor Ladd as the *description and explanation of states of consciousness as such.*

"By states of consciousness are meant such things as sensations, desires, emotions, cognitions, reasonings, decisions, volitions, and the like. Their explanation must, of course, include the study of their causes, conditions, and immediate consequences, so far as these can be ascertained."

No perfect definition of epilepsy has been given and we must content ourselves with something which we all know is not a full and correct definition or else dispense altogether with a defining phrase and rest upon what we know, each in his own experience, of the syndrome named epilepsy.

We come, therefore, to a sort of understanding that what we are trying to write about is the states of consciousness as they exist in diseased persons who have epilepsy.

I might change the more pretentious title to "States of Mind in Epileptics."

We find in an institution that the larger portion of the patients are practically demented. A very large number were always properly to be classed with the feeble-minded and as their disease progresses, this is more evident. Then another large proportion become demented, who originally were almost or quite normal. They have usually sides upon which they will converse well.

The epileptic person who represents pretty nearly normal conditions of mind is rare. Some appear to thus remain nor-

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mal for a long time; but usually we find that under moderate stress these individuals betray a fault of temper which is a very prominent failing in those more weakened, and even in the mild grades we cannot be sure that a maniacal attack of more or less severity with insane delusions may not supervene at any time.

I am leaving out of consideration as much as possible any case that appears to be one of feeble-mindedness, either original or acquired. I am well aware that these are all cases that may also be studied from a different point of view. Here I will only attempt to touch upon a few states of mind, mainly such as have come under my own observation.

The *misstatement of facts* is a prominent feature. Very often we find that the patient tells a very different story from that told by the attendant and we do not always feel sure that the word of one is more to be depended upon than that of the other.

I have, however, some instances in which I know what the exact facts were and in which they were related by the patient as being quite different and this too with every apparent intention of telling the truth. The misapprehension was due to the mental state of the narrator.

A boy of seventeen, epileptic for many years, and formerly suffering from the procursive type, was remonstrated with for running into the furniture, striking against the walls, etc. In the conversation I told him that it seemed to me he might control his impulses better and possibly restrain himself altogether; that his performances seemed ridiculous and that he acted in a very foolish manner. His version of the conversation to my assistant was that the doctor called him a d—— fool and that he was unused to have anybody talk that way to him. However, his interpretation of the meaning was beneficial, for he ceased the running and soon came to have only infrequent attacks of a mild type with no running.

A patient brought in a banjo which had been given him and asked to have a new head put in. This request was acceded to and after a time the repaired instrument was passed over to him. He then declared that the strings had been stolen. We know positively that the strings were not in when the banjo was sent away. He is still convinced that his strings were taken out either in the office or by the man who made the repairs.

Another instance was that of a man who was complaining and unwilling to work. He entered frequent complaints. In a spirit of philanthropy, I took an hour for a sitting with him. I asked him into the dining-room away from the other patients; though several different persons went through while we were there. I tried to advise him according to his needs and offered in several lines the kind of counsel that seemed to be adapted to the conditions. I went out feeling almost as if the time had been well spent and that I had apparently been of some use to the man and had left him feeling much more contented and rational. Two hours afterward he told my assistant the conversation and muddled it generally; but the main features, as he represented them, were that I had choked him and that he had bitten my nose. The imagination is a little inclined to fill in the gaps in such an interview with lively wrestling and falling about the floor. This may have been lying; but I judge not from other misapprehensions in the same individual.

Patients seem in many cases to be fully competent to look out for their own interests and they seldom fail to do so in a fully selfish manner.

The gratification of the appetite is a prominent feature. We often find patients who deny themselves if they have been taught to do so as a matter of treatment; but the rule is that they gratify their appetites as fully as possible even when great injury is done. Gluttony is common if means are present in sufficient amount, and the gratification of sensual desires in general is the rule. As to the sexual appetite it is not usually excessive though sometimes so; but I think it is more often diminished.

One memorable instance is of a patient who got possession of a pudding made for the ample dessert of fourteen farmers and gorged himself with the whole of it. He died in *status* promptly.

In the field of intellect epileptic persons have almost as many methods of deriving pleasure as the majority of mankind. When not demented, they enjoy reading, artistic things, music, painting, and the general run of cultivated pursuits as well as other persons, and in accordance with their culture.

In the case of an advantageous bargain they seem quite capable of looking after their own interests. One patient ob-

tained by correspondence a place to work in Boston, while he was still a patient at the hospital; but he was bright enough to realize that his prospective employer would not carry out the arrangement if it appeared that he was an epileptic. He therefore concealed this fact very shrewdly. He obtained money for his fare and, so far as I have learned, has given satisfaction in his work; though he has occasionally had a fit at night. When this has occurred he carefully arranges in the morning so that no trace of his attack will appear and goes about his work on the lawn, in the stable, driving his employer to town, etc. Up to the present time his secret has not been discovered.

Another patient had a bank deposit of considerable amount which, he says, he saved by frugality. He was always industrious, had no bad habits and lived as a very peaceable citizen. After a few years his seizures became so frequent that he lost his job and had to begin to spend his hoard. He made one or two investments, by the advice of friends, which turned out badly for him, and his bank deposit was reduced to \$300.00. This he felt he must save and he accordingly applied for admission to the hospital, after having obtained a promise from the overseers of the poor that they would not use his money to defray his expenses. He took every precaution he knew to render his money safe. His efforts proved ineffectual in the end, as the overseers were more expert in legal jugglery than he. He accepted the defeat gracefully and said he might as well settle down for the rest of his life here, as that seemed to be the only way in which he could beat the town officers. They would have to support him when his money was gone.

As an instance of loss of temper without adequate cause, a patient who was waiting in the hall was asked what he was waiting for. He became angry and scolded loudly. Even after it was explained to him that the question was asked with a view of being of use to him, he kept on a muttering complaint. This man had no delusions.

A man who complained of his diet and the general management was a good Methodist, but used the worst of profane and bad language. He said he knew he ought not to do so and felt sorry. He affirmed that while he was uttering the profane words, he was lifting up his heart in prayer to be kept from it. He has manifested other dual traits of similar character.

As instances of impaired memory, I will note the circumstance of the majority of the men in a cottage sending in a petition to have their substitute attendant installed permanently instead of the regular man who was away on a vacation. Some of the brightest men did not join in this but advised me privately that it was a movement in the interest of idleness and impaired discipline. As the regular attendant seemed competent, no further attention was taken of the petition beyond conversing with individuals as occasion offered. About two weeks elapsed and one day I had an opportunity to ask one of the best of the disaffected men how things were now suiting him. He had entirely forgotten that a petition had ever been signed. He had no fault to find with his attendant and could hardly credit it when he saw his own signature written two weeks before.

These patients are thus apt to forget recent events, the unpleasant nearly as promptly as the agreeable, though not quite. The more firmly fixed earlier impressions last longer.

We have had several instances in which the death of a near member of the family has not been announced to the patient and he has gone on month after month without ever appearing to realize the truth. In two cases the loss of the mother has thus been kept from the patients by their friends and in one of these nearly two years has passed and the man does not make any inquiries or appear to remember that he ever had a mother. He is of average intelligence in matters that he remembers.

This difficulty is often noticed in getting a reliable account of any important event.

The speech defect seems to be a mixed type of aphasia and amnesia. As an example: A patient runs in, breathing hard and in an apparently great state of excitement. With violent gestures and emotion, he tries to explain what he wants. He misplaces many words, uses the wrong words after trying many times to get the right one, and to a person unaccustomed to him, would not convey a correct idea of the situation. To one who is versed as to the place and the man, a pretty accurate understanding is possible. We listen to the inaccurate, jumbled, hurried though slowly progressing statements, and by knowing all the outlying conditions, we are generally able to form a good idea of the man's wishes.



The general susceptibility to suggestion is noticeable. A man wanted to take one of the female patients to an entertainment, but was easily persuaded not to do so. A couple had formed a plan to marry, but upon advice being offered them, they readily gave up the idea. Along this line a large number of experiences might be rehearsed, as the fact is very commonly illustrated. We practice suggestion in almost every case we deal with and epileptic persons are known to be more susceptible than other classes of sick and much more so than the insane.

The hopefulness of epileptics is a noticeable feature. We seldom see a real melancholiac among the idiopathic epileptics; but while this is true, it is also a fact that this class of persons are easily made despondent and easily again roused to hope. In this way a certain consistency obtains as to their lack of inhibitory power.

I ought to mention as a state of mind some conditions of psychic epilepsy, though about these, as well as somnambulistic states, retrograde amnesia (1 case), all leading to the fully insane condition when acts of violence, etc., may be committed, I can offer nothing new. The majority of patients in whom the psychic equivalent is manifested do not become inmates of hospitals.

*Conscientiousness.* A man had given way to temper and showed violence, striking, biting, etc. He expected to be punished for this exhibition by being moved to a closed ward. This was considered, but owing to the man being of a conscientious type when not in a passion and the fact that he had rarely exhibited ill-temper, the occurrence was passed over and nothing said to him about it. He moped about for several days like a dog who expected to be whipped, and finally, one day when he was alone with me in a building where he was doing some sweeping, he burst into tears and exclaimed, "Why don't you move me to ward 4 where I belong?" It took some argument to convince him that he was being treated with consideration.

*Quarrelsomeness.* Two men who were friendly had a difference about the ventilation of the room of which they were the sole occupants. One was a man of over sixty, who had a past. He had been addicted to drink and tobacco for many years. His friends were out of patience with him and the town author-

ities, where he had at one time himself been town auditor, refused to have him come within the town limits. The other man was of a much better type though he had become phlegmatic for a part of the time and refused to respond to the approaches of his wife or daughter. One of these men desired the window open; the other complained of cold and wished his room-mate to be removed and anybody substituted, "even a nigger," as he expressed it. The war waxed warm but no change was made; though efforts were put forth with each party separately. In fact the second man had no complaints to make. All that he desired was that he should not be disturbed. Affairs were left *in statu quo*, the room temperature being recorded every hour night and day and the one who suffered from chills being supplied with innumerable blankets, which he did not use. In a few weeks, the war ended and a condition of good feeling succeeded.

*Insensibility to pain* is a feature often noted. This is in some cases not due to bromide narcosis. On the other hand, some patients are hypersensitive both as to sense perceptions and psychically.

As a rule epileptics are *incautious*. Many are oblivious to danger and hence the mortality is very great.

*Inefficiency in work and over-confidence.* In the case of an epileptic tailor who was wasteful, we could not afford to have him cut. He thought his services had been of great value and often declared that he had saved us hundreds of dollars by his work. Any attempt to advise him about his fault always met with a stubborn opposition. He took the position that he knew all about cutting and that his adviser was not competent to offer opinions. The overseer of the shop cannot approach him even in the kindest way.

Another patient who is equally difficult to manage will not work in the stable because the man who has charge seems to him incompetent. In other departments he finds similar faults of inefficient methods. If left to do work he does it very well, often with errors, but with a manifest superior plan. He easily excuses his own errors or fails to recognize them.

The attitude of such persons suggests the advisability of an autocratic management; but even a military discipline would

soon lose its efficiency and they would fail to obey on the ground that the general did not know his business.

To my mind a lenient forbearance works good results though many fail to allow any credit to the hospital management for this consideration.

The *childishness* of all such patients is the main trait to remember. Even in the best class of cases these features are still noticeable.

The son of one of our patients is an epileptic, but occupies a position of responsibility. He manifests some weakness which even his mother is free from.

To go into the *superstitions* would be inapposite. Some have said that the more repulsive the remedies the more effective. Hence the example from Spencer's Synthetic Philosophy of the belief that epileptics may be cured by drinking water out of the skull of a suicide or by taking the blood of a murderer.

The instance cited by Hare of the call for Magpie's hearts to burn and produce an ash for an epileptic powder is well known.

One of our men says he was well up to twenty-five then after whispering a charm for epilepsy into the ear of a woman lying in a fit, he became epileptic and has remained so ever since.

It is possible that attacks may occur from *mimesis*; but I have never known an instance where this seemed to me a probable cause.

Two cases have been ascribed to this cause. Upon careful examination, I felt sure that other causes were more potent. It is nevertheless true that epileptics, as a rule, think it will have a bad influence on them to be associated with other epileptics. When we take the ground that such an environment provides valuable experience and useful discipline, factors in their treatment, there is usually no dissent after a few weeks of hospital teaching. This again illustrates the suggestibility of epileptics.

A marked faithfulness in carrying out medical instructions exemplifies a mental trait commonly met with. This may be depended upon if taught early enough; but as a late lesson, administered by strangers away from home, it has little or no weight.

There come to be settled opinions among our patients, generally finally correct, but often ridiculously erroneous, until the mistaken idea has been persistently combatted.

The belief of epileptic persons that they are invalid and the naturally consequent disinclination to exertion comes almost wholly from the erroneous teaching of tender parents and the formerly common misconception of the inexperienced family doctor. Some few exceptions who will overwork if not advised against it are however, met.

I quote from Berkley as follows: "Epileptics that have had fits for years show a dimming of the reasoning faculties, defects of memory, alterations of character, a sinking to a lower plane of intellectual fineness, and above all a tendency to impulsiveness, irascibility, and a susceptibility to groundless dislikes. To this rule there are but infrequent exceptions. In many instances of the disease seen in general practice, the patients are irritable even to violence, unmanageable, careless of the sensibilities of their families or friends, and are among the most difficult mental cases to deal with. The physician is often consulted by the families of such epileptics as to the measures to be undertaken for their proper control. Unfortunately such patients are not legally irresponsible, except at the moment of the attack. As a rule, they will not submit themselves to treatment for any length of time, and, since the law regards them as free agents, forced seclusion is not usually possible until some deplorable incident has occurred."

Some observations with the best grade of persons having epilepsy are under way but not completed. These comprise a few of the ordinary tests made without apparatus, for discrimination of form and color, memory, span of attention, the solution of simple arithmetic problems, depth and length of sleep, dreams, etc., suggestibility, susceptibility to suggestion, throwing at a target, tapping, etc., as well as of sense perception with reference to purely subjective states.

The results in these experiments are not known: but they appear to be just the same as we find with a number of normal individuals. We find impairment just in proportion as the intellect is impaired, slowness of response, failure to comprehend, coupled with the common manifestation of strain or extra effort being put forth to do what they have been asked to do. I



think we notice this intensity in even the pretty nearly unimpaired. They seem to make too much of things and give the appearance of great care and slowness.

I have a very intimate college friend, a man now over forty, who developed epilepsy at eighteen and suffered from many severe fits each week for nearly twenty years. Since then he has been well. He is intense. He is over-sure of being permanently well.

The observations that have been made as to emotions and will show a condition of less control. The emotions overbalance the intellectual forces and the will is less subservient to intellect—a weakened will as a part of a general psychical degeneration.

There is also well marked physical decadence in all cases of any severity.

An officer of the hospital expressed a truth when he said, "These epileptic persons can't fight; they lack steam; are easily tired." This is perfectly true. The fact is also patent that many of these persons fight with great strength for a time. They will pitch in without much provocation, often, no doubt, from the effect of an hallucination, and strike unexpectedly with great force once at least. They sometimes bite. Expert persons, who are active and normal, can easily avoid a collision. They can evade the on-rushing bulk by celerity of motion and can, if so disposed, get in telling blows while their epileptic assailant is unguarded. A few bruises and the sluggish awakening of pain may bring the brute force to a consciousness of itself and to terms; though some have no caution and would never yield. Coaxing will do more than force in moving them. Fights with epileptic sailors or lumbermen have often occurred (their associates not realizing their irresponsibility) in which the epileptic has been horribly beaten or even killed. An epileptic person of this grade, who is in liquor, is perfectly incapable of fear or reason and may commit the most horrible crimes. They have the too common feeling of the illiterate that they must resent what they have been taught to consider an insult. I think they do this more with a feeling that they are showing the spectator that they are strong, intelligent, brave, and doing what they ought to do than from any deep conviction of injury. This trait represents a self-

consciousness, gone to seed, which is far too prominent a feature with those who are not diseased.

I wish I could present data without drawing conclusions, but I have to offer mainly mere impressions derived from a long association with epileptic persons but substantiated by particular instances.

As a generalization, I think I may say that these persons are almost all inclined to act upon impulses, such as move young children. I have seen very few hospital cases who were not thus inadequately moved. They manifest an inability to do work well. The fineness of perception is blunted; but there is present a general well-meaning, an intention to do the right thing.

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## WAS HE A PARANOIAC ?

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*By C. A. Drew, M. D.,*

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H. B., a Hebrew, thirty-five years old, born in England, was admitted to the State Asylum for Insane Criminals January 22, 1902, from the State prison in Charlestown, where he had been serving a five to nine years' sentence from March 26, 1897, having been convicted as a "common and notorious thief." The medical certificate on which his commitment was based reads as follows:

Charlestown, Jan. 17, 1902.

His Excellency W. Murray Crane, etc.

We have examined H. J. B., 35 years of age, committed March 26, 1897, as a common and notorious thief, sentence of from five to nine years, and would respectfully report:

When B. was first committed he worked in the harness shop; he began to agitate the men and was placed in Cherry Hill, where he began to write to all the authorities and to lawyers telling of the illegal actions of the officers of the prison and wishing to begin actions in law against some of them. He claims to have been admitted to the bar in Dakota. He was arrested in London, Brussels, and New York as well as Boston. Perhaps there is no inmate of the prison who has given more trouble to all concerned than he.

At our first examination he began telling in legal terms how unjustly he had been treated before his trial and claimed that from the first he was a victim of persecution and conspiracy; that his sins were sins of omission (neglecting to say his prayer often) only, and not commission. He related how many people would be defendants in cases he would bring against his persecutors. He also showed some wood and iron that had been placed in his food. The examination lasted over two hours.

At the second examination he recognized us and began to say that we were engaging in a conspiracy to pronounce him insane in order that his enemies might get possession of his property. He rehearsed nearly all that he said at the former visit and taking his oath that he was an innocent man; that in all of the former arrests in London, Brussels, New York and

elsewhere he had been exonerated, and that the so-called obtaining money under false pretenses was proven to be legitimate business. He asked us to examine two bottles of medicine that had been given to him from the prison dispensary and then demanded that we should make a thorough analysis of them both, but at once claimed that we should use neither what he showed us at the former visit, nor the request for examination of the medicine at this visit as evidence of delusions on his part. He quoted law to prove that if we did not at once take steps to inform the proper authorities that he was unjustly held, improperly treated and a victim of an outrageous conspiracy, we were guilty of concealing evidence and would be defendants in suits which he would bring against us. At times he would stop his conversation and examination if any people were listening to him; at another time he would get up from his chair, go to the door, and ask for the deputy just to see if he were trying to overhear our talk, although we had told him that the deputy had returned to the yard. He is very suspicious of almost everybody that comes in contact with him. We were with him over four hours at the second examination although we were convinced at our first that B. is a litigious paranoiac. The little legal knowledge that he has is the nucleus about which are formed all his ideas of his relations to his fellowmen and their conduct to him. He has employed no less than six lawyers since he has been an inmate of the prison and has discharged them all because he became convinced that each one had been influenced by the warden and he has told about others he had employed and discharged.

We feel that his proper place is at the asylum for insane criminals.

It may be remarked that this certificate is long and strong. It seems to establish delusions of persecution,—one of the most characteristic symptoms of that form of mental alienation called paranoia. We learn that this prisoner had been under observation nearly five years, that he began to agitate other prisoners and was placed in "Cherry Hill" soon after his sentence in 1897. It may be explained that "Cherry Hill" is a building with large well-lighted and well-ventilated rooms for the isolation of incorrigible prisoners. We learn further that the prisoner was very insistent in his efforts to bring suits at law against the prison officials and others, and from other sources we learn that in the opinion of certain friends he had a "mania" for bringing suits at law even before his last arrest and sentence. Those conversant with psychiatric literature will recall that under the names of "querulent insanity," "quarrelling insanity," or "litigious insanity," the majority of Continental writers as well as prominent alienists of England and America have written concerning these people with a so-called "mania" for quarrelling. The majority of medical writers have considered certain of these people insane, even when no



clearly defined delusions could be demonstrated, and have generally classed them as paranoiacs,<sup>1</sup> although Krafft-Ebing seems inclined to put them under the heading of "moral insanity," and Berkley considers the litigationists better classed with the ethical imbecilities. So far then as this propensity for litigation has weight,—and we shall wish to refer to this phase of the question again,—it substantiates the diagnosis of the committing physicians, for it is counted competent supporting evidence of mental degeneration by the majority, at least, of recognized authorities in mental medicine. The extreme suspiciousness of the subject is another strong pillar supporting the diagnosis, because extreme suspiciousness is a common and prominent characteristic of most all paranoiacs.

Passing the leading symptoms in review, we have a strongly litigious propensity and apparent delusions of persecution, conspiracy and poisoning, with extreme suspiciousness,—the common accompaniment of such delusions,—truly a strong syndrome on which to base a diagnosis of litigious paranoia. If the suspicions of poisoning and ideas of persecution could be established beyond peradventure as delusions, in the medical sense, and if it could be shown that the man had at some time been frank, truthful and honest, insanity would be established beyond a reasonable doubt, although we might then have doubt as to the form of insanity. But the whole evidence tends to show that the man was never truthful, frank or honest, and it is almost self-evident that a man's natural temperament, character and education must be considered before we can determine whether he reacts in a physiological or pathological manner to his environment.

On admission, physical examination of H. B. was negative, except that the pupils were seemingly myotic,—reacting very slowly to both light and accommodation,—while the patella reflex was very slight. These variations from the average were not greater than is occasionally found in individuals in whom there is no suspicion of organic disease of the central nervous system; and, as frequent subsequent examinations failed to disclose other neural anomalies of significance, the conclusion seemed justifiable that the apparent myosis and diminished knee-jerk were normal to the individual. It ought to be noted, however, that the opposite condition, a dilated pupil and ex-

aggerated patella reflex, is more common in patients of a neurotic organization, to which class J. B. clearly belonged, and that a spastic myosis is about the most common eye symptom in paresis. The mental examination was continued for from one to two hours at a time for several consecutive days and the first impression was strong that we were talking with a victim of early paresis. Paretic, paranoiac or moral imbecile seemed to be the diagnostic question.

Our patient manifested quite enough egotism for a paranoiac. He was perfectly coherent and had a good command of English, but his memory seemed poor, in that his long story would differ in some essentials from day to day and there would be many inconsistencies in his statements of alleged facts. "Oh, I do not claim to be a lightning calculator," he would say, when his attention was called to the fact that his dates were badly awry. It is written in our case records that "His story is very disconnected, either because of a disturbed brain or because he is lying so rapidly that he cannot maintain the proper sequence of events. Any discrepancy brought to his notice he immediately cleverly explains, but in a way to vary his original stories considerably. The good nature and optimism which he shows, the ease with which he speaks of large amounts of money and extensive commercial interests, his good-natured egotism, the many discrepancies in his stories, the readiness with which he explains, though not always satisfactorily, together with some suspicious physical signs, the contraction and slight mobility of both pupils and almost absent knee-jerk, give rise to a strong suspicion of paresis."

This is not at all like the typical paranoiac if we use the term in the restricted sense of the "original monomania" of Sohmer and the "primary monomania" of Spitzka and Kellogg. The paranoiac's memory is commonly good, often preternaturally good. Morbid introspection has seemingly fixed every event of his life in self-consciousness and so exaggerated its importance that each personal experience for a series of years is faithfully reproduced as to dates and consistently as to sequence of events.

With the paretic the symptom-complex is strikingly different. Here we have an organic disease of the brain, a chronic meningitis with atrophy and softening of the brain cortex, the pro-

duct of "civilization and syphilization," as Krafft-Ebing has tersely put it. A good-natured dementia is the leading characteristic. Grandiose accounts of his experiences, apparent mendacity, is the rule: petty acts of dishonesty are very common. A jolly good fellow and a spendthrift, a lover of good wine and bad women, in the early stages, frequently a petty criminal later on, almost surely bedridden in four years, with far advanced motor and sensory palsy, he yet insists that he is "all right," that he has lots of money, hosts of friends, many wives, perhaps, and that he never felt better in his life.

The imbecile is of another kind, for his troubles are many and his chief mission seems to be to make trouble for others. That particular imbecile called the moral imbecile, because the moral sense is most conspicuous by its absence, has been well called "first cousin" to the paranoiac. It is doubtless true that a bad heredity, an unstable nervous organization, a vice of constitution, is the soil from which both have grown, yet there are important differences.

H. B.'s previous history as related by himself was so long that he was asked to give it to us in writing, hoping to get an abridged edition. The written autobiographic statement was "toned down" a good deal from his verbal statement, and I can only include enough to illustrate the nature of his statement and the writer's coherence of thought:

February 5, 1902.

Gentlemen: In accordance with my arrangement with you, I herewith send you a brief statement relative to certain transactions and facts related to you verbally. I am the son of M. B. of London, England. My father was owner of the city of London Printing Works at one time, also owner of the Rotary Ticket Printing Machine (patent). My father was a promoter, financier and private banker in London and has successfully floated many large companies. I was informed that my father had purchased and brought out the International Cable Company, the Bermuda Cable Company, the Quartz Hill Gold Mining Company, the Parcherry Mining Company, the Wala Wynad Mining Company, the Santa Rosalia Mining Company, the Washington and Seattle Breweries Company, the Iowa Pacific Railway Company, and many other large companies too numerous to mention, but which will be more particularly set forth by my relatives and others. \* \* \* I am a lawyer, studied law in London, England. Educated in Dublin and London. Was manager for M. Barn & Co., Law and Mercantile Agency, New York. Was manager and president at one time of the Joseph Jackson Company, incorporated, at 258 Washington St., Boston. Was manager of the Rollins Harlow Company at No. 1 Beacon St., Boston. I was in part-

nership with Frederick H. Jackson, Real Estate Broker, 23 Court St., Boston, Mass. I am informed that the said Frederick H. Jackson is a man of means. I have lived at Wellington, Massachusetts, and kept two horses and carriages and owned my own furniture there. I lived at 321 W. 14th St., New York City and owned furniture there and valuable paintings. I am perfectly willing to make any statements written or verbally as to the above facts and you have my full permission to write to the parties above referred to.

(Signed) H. J. B.

This rather incredible story written with care, without the embarrassing factor of a cross examination, was not made wholly of imaginary "mind stuff" as are the roseate ideas of the general paralytic. He was the son of a once wealthy Hebrew whose name and address he correctly gave. He was petted and very much indulged as a youth, as will be shown by other evidence. The proportion of truth and falsehood in the history, as a whole, could be fairly judged from his mother's letters which have an intrinsic value of their own besides throwing a flood of light on our patient's peculiar mentality. It will be admitted that the absurd statements of the parietic and the persecutory and expansive ideas of the paranoiac are sincere beliefs, due in the one case to active brain disease, and in the other class to a slowly progressive psychical degeneration. On the other hand, many sane people delight in "drawing the long bow," and the talent for weaving a thread of truth into a fabric of falsehood so cleverly that the single thread will first catch the eye of the casual observer is a characteristic accomplishment of the moral imbecile and the habitual liar whose sanity is not usually questioned. When cornered by a cross examination, H. B. would admit that some of these many companies successfully "floated" by his father were "brought out" on paper only, and I would here observe that nothing more clearly marks the difference between the absurd fancies of the parietic or the systematized delusions of the paranoiac and the "fish stories" of the imbecile, than the efforts of the latter to support each falsehood with two more of a little different shade.

A series of letters, remarkable in some ways, were received from patient's mother. These letters, to my mind, are of sufficient psychological interest to be read in full, but in a reasonable time limit I can only quote here and there. In her first letter, dated Febrbary 7th, '02, she writes:



Your letter to my husband was handed to me. I do not know as I shall give it to him, as he is at present suffering from acute heart trouble. In the meantime I shall be perfectly explicit with you, although I am not filling up your enclosed form. My son is of ill balanced mental and physical organization, neurotic, hysterical, of strong passions, weak moral force (in fact of no moral fibre), no sense of duty, a victim of an exaggerated form of intellect which causes him to see and judge matters as a horse's eye sees an object. He is clever and artful and in him the disease would be moral insanity. A sister and brother of mine are in the asylum. Our unfortunate son was not properly brought up. His father showed him an extravagant example and would not have him taught bodily work. He was indulged in every whim, as his father is a man with no sense of responsibility. Anything you ask shall be answered per return mail. \* \* \* My son's affliction did not spring "*ab initio*" from any involvement of neural processes, although through hardship injury may have subsequently occurred. I assure you that instead of his conceptional faculties being impaired, to my mind, they are vivified. Strange to relate, more like a fairy tale, every word he related, as you have written, respecting his father and himself is truth, but in the abstract. In detail, they would admit of a very different construction to what he would have you understand. He has not drawn on his imagination for the events of which he made you acquainted, but he is either mendacious or misled as to the results. You asked me at what period I noticed a change in my son's demeanor. He was always obstinate and ungovernable and when at a very youthful age he consorted with bad companions of both sexes, then the influence of a mother was quite overthrown. Mind, he seemed to be possessed of great ability and great industry and huge capacity to work in what occupation suited him. Here we get great force misapplied, producing *crime*, as it invariably does. His defects are congenital and the law of heredity in this instance is painfully substantiated. His, notwithstanding his great capacity, is a low order of human intellectuality. Two senses fail him to balance the overwhelming forces of his nature. *Sense of danger, of the law of results, and sense of responsibility.* Admitting this, then where can the poor human vessel look for ballast. In palliation and extreme grief for the strait he has fallen in and the awful result of the 'sins of the fathers,' etc., in pity bear in mind that he had an over-indulgent father, who had not the capacity to control him or to show him a good enough example to restrain him. I was adjudged a hard mother because I wanted to spare the child and not the rod. As this tended to break the peace and disturb the rest of the household I was bade to desist. Hence the result. \* \* \* They tell me that I am a pessimist, that unhappy being whom everybody wants to avoid for the sake of the bliss of living temporarily in a fool's paradise. It may be true. Can I help it? \* \* \* Have I not been deprived of the power to enjoy? I am resigned, for an Almighty Power animates me to throw myself into the breach and save those that would otherwise be lost. I have brought up ten children creditably (except the eldest). All my daughters are exceptional honors to me. My husband's businesses have failed and we are in financial straits. I am at the helm and dare say will steer through all right with Divine help.

### On March 28th the mother writes again:

As you see him now so he has always been, hounding me for money to gratify his whims to squander it. On the other hand, from his writings, etc., he is not a fit subject to be in a lunatic asylum. In justice I must say this, because people are at large who are not so logical or constructive as he is. If people with an "idée fixe" were always confined, the world would be one huge lunatic asylum. Although he is morally obtuse, and although in the world not of the world, merciless, ungrateful, unnatural and unprincipled, without the slightest force of natural instinct, morally a monster, still he is not what many thousands would pronounce insane. We know he is the victim of an obscure brain disease. Many times puzzled, I often think it is malformation of the brain, with strong passions, and no moral force to govern all. He was always litigious. Of course there is policy and method in this, for when a swindler is discovered he relies on his clever lawyer to find a technical point for him to elude conviction and consequences. This is all to me something too shocking from my point of view and really my brain seems to be giving way. I feel as if I had been smelling nitrite of amyl. I am an old woman and shall be getting brain lesion with it all, no doubt paralysis. My nerves and muscles all ache. I am fast losing power of volition. What shall I do?

While physicians may smile at the mother's analysis of the case, I think members of this Society will agree that her observations were keenly intelligent and her deductions not very wide of the mark. If one wished to write a thesis on the relationship between genius and insanity to prove Dryden's oft quoted clause, "Great wits are sure to madness near allied," the forceful and pathetic letters of this highly-gifted Jewish mother would serve as strongly presumptive evidence. The mother writes again on April 10th:

It is not that Harry is so litigiously mad. He is revengeful, it is true, and craving for notoriety. What he really is, is a blackmailer,—a past master in the art of insinuation and blackmailing. When he goes to New York he will commence the blackmailing profession over again and get himself run in again. No, Mr. Drew, I will not undertake the onus of accepting the charge of him. \* \* \* It would be better for me to go to the devil than to bring the devil upon me. \* \* \* I wonder if you read his one-part deceitful letter, the other part as impudent, arrogant and overbearing as ever.

Apparently the mother's high tension organization had been taxed almost too far by the son's importuning letters, covertly threatening if she did not send more money to publish his grievances in the newspapers, using his own notorious record as a weapon to extort money from his family through their natural fear of a sensational publicity which would certainly injure the other children and further stain a respected family

name. Twelve days later she writes again and now, the mother instinct being again dominant, she argues in defense of her son that he may not be returned to prison, even though she cannot have him sent to an asylum in England, as had been proposed. Both explanation and argument are so creditable to the mother's heart and intelligence, and so interesting from a psychological view point, that I venture to quote further from a letter dated April 22d:

"While I thank you for your goodness in endeavoring to get Harry sent here to an asylum in London, I dare not bid him to be brought over. Did I do so it would at once break up the home and scatter its inmates. My daughters are working might and main at honorable professions to help me to get a living for themselves. One of them is engaged to an influential man here. My husband has only to receive a shock; he will die. Therefore they object to my bringing over sure trouble. They affirm that Harry would not rest in an asylum here but would insist and succeed in making himself heard to air his grievances. The newspapers would ring with the unusual news, the members of my immediate family, where they were previously respected, would be surely shunned, no doubt their professional engagements canceled, my husband killed, myself paralyzed by despair, and all for what? To save the feelings of one unworthy, refractory being. How can I contemplate the commission of such a crime? I dare not do it. Dr. Drew that man cannot be sane. Nor is he. It may be true that were he to speak in his lucid, able and logical way to even experts in insanity, they would not detect the flaw but declare that only a man in possession of his senses could so ably argue and manipulate documents and seize on technical points of law to get in the thin edge of the wedge to let himself out. They might not agree that his is an obscure form of dementia, a case, to dive deeply, clearly and concisely into it, where the objective mind is more or less clouded or impeded whilst the subjective mind is permitted a force and liberty which would not belong to it were he in a condition of complete sanity. With his avowed declaration to fight law and power to go to New York to blackmail Chapin, regardless of consequences, even any medical man decided to maintain that he is as lucid and logical and clever as any other man on the same plane, if not even more so, must at the same time admit that there is a departure from the normal balance and recognize his mental irresponsibility. The man has gone mad. His subjective mind is sole and supreme in the display of its functions. Thus—what is it we perceive? Why—a recollection of one rooted experience, one grim resolve, the "*idée fixe*" of the monomaniac, which will possess and play the tyrant with his mind, cause him to pursue his suicidal purpose to the bitter end, always regardless of consequences, as unreasonably and fatally as the moth flies in the flame.

The contents of these letters is my best excuse for the lengthy quotation. The son's style in writing is strikingly like

his mother's. The following to his wife was written on one of those days when he was apparently on good terms with her, but he was a master of blandishments to obtain money or gain a fancied vantage:

March 12, 1902.

**My Own Darling Wife:**

Just a few lines to tell you I received a letter from my mother on Monday and it was enclosed to Dr. Drew. I understand my mother's *meaning* and everything is satisfactory. When you come to see me on the 26th of March I will give you a draft for some money and I will explain things fully to you what to do. I shall draw on a certain person at sight and the money is to be paid to you and you alone, as you are my wife and I cannot trust strangers. I shall not call upon you to pay any one else but Mr. Fishacher, yourself and myself. I have received some very satisfactory letters from New York and Boston. I cannot write it. Everything is going *well*. Cheer up, little wifie. God is helping us. I have had some blank drafts sent to me and I shall have a letter all ready for you and draft on the 26th of March positively. Write to me at once and tell me all the news. Write to my mother again and tell her not to write to Dr. Drew again. Be careful what you and Mr. Fishacher say to Dr. Drew. I shall explain all when I see you. I have some startling and good news for you. I dreamed last night of you all and of Queenie playing the piano and Clarence. All you, my three darlings, were kissing me and loving me. I am lonely at times without you dear. You said that our children would write to me last Sunday. I have not received any letter yet. Write often to me and cheerful letters as it is good for me. I am taking fresh air as you wished. Your poor husband is battling against the breakers but he will come into port, and although tossed and wounded on the ocean of life, sees the lighthouse not far off. Our ship will soon sight land, my wife. Cheer up. God bless and guard you all. Your loving husband.

(Signed) H. J. B.

P. S.—Good night, love, and kisses \* \* \* Be sure and be here on the 26th of March. Write me you are coming, love. \* \* \*

The following to his mother was dated March 28, 1902:

March 28, 1902.

**My Own Beloved Mother:**

Your letter duly received enclosed again. I again ask you to write to me direct to Mr. H. J. B., State Farm, Bridgewater. It is not necessary to put word asylum. Now let us come to some common-sense talk. I agree with you it is bad to be robbed by lawyers. Recapitulation, recrimination and transportation seems to be your peculiar mania, and writing chronic, lovely incriminating epistles about insanity in my family, and such untruths and foolishness, giving Dr. Drew and the State Board of Lunacy the power to hold me indefinitely. You are trying to bury me alive and turning the key on me with double padlocks. Clever muddlers. I had arranged everything well. Mr. Fishacher and my wife came on the 26th of March and in the presence of Dr. Drew, my lawful wife said the words, "Dr. Drew, I



have come for my lawful husband, his sentence has expired, and I, his lawful wife, am here to take him into my custody." Dr. Drew replied, "I regret, but I must have an order from the State Board of Lunacy." Now the State Board of Lunacy is a tool of Dr. Drew's and it is simply a see-saw formula game, exposed in the newspapers before, robbing men and burying me alive in a living tomb. However, Mr. Fishacher has arranged with the commissioners to give me a ticket of leave and the State Board of Lunacy must let me go if my wife, who is my lawful, legal guardian, takes me in her custody. Everything is arranged and poor Gertrude is on deck ready. We shall not make a demand until the \$250.00 is here. Send the draft to Gertrude at once. Do not muddle matters for God's sake. I shall follow out your idea in many ways. Remit to my wife, Gertrude B., at once. I am satisfied she is faithful and loving. She lay in my arms all day and is pining to get me back with her and the children. Do not delay a moment. Leave all to me. Mr. Fishacher and Gertrude and myself will arrange everything. On receipt of the money, wife will get me a suit of clothes, some shirts and pay my fare and I shall come out all right. The reason why I want the money at once in my wife's hands is because when she sees the Board of Lunacy with Mr. Fishacher, she will state that she has money to take care of me and that I will not be a charge on the State, and Mr. Fishacher has got the ticket-of-leave ready from the commissioners and police. Remit to Gertrude at once. Do not muddle me into my coffin, as that will be the next step, my coffin. You have all muddled me into a mad-house and the next will be death. Stop muddling. You have a dangerous pen writing about insanity. The insanity dodge adopted by lawyers is good in some cases, but not in all. Use tact and judgment. Stop this ghastly work of thwarting my able efforts for release. Remit and you will soon get a cable from me when I am free. Gertrude must have money in hand to state she is able to take me. Do you understand or are you obtuse. When you wanted money I sent it to you. I need help now from a lunatic asylum. I know, my own beloved mother, you mean well but it is a case of life and liberty and I must speak plain. Be sure and remit at once. Instead of your coming over, my wife will do your work for you and take me. Send her the money. I can be out now in an hour, but she must have cash to say I am all ready and not a burden to the State, etc. I am now at your pleasure, waiting in the mad-house for funds for help from you. Cable remitting. May God bless you and keep you and guide you. I shall find lots of work to do and will be a good, faithful father to my darling children and a good husband and a faithful son to father and you. I long to kiss you both again. Good bye.

Your own loving son,

(Signed) H. J. B.

P. S. Remit cable. Remit to Gertrude, she is faithful and true. I have found it out. Remit. Waiting. Help. I shriek a sane man from the mad-house. Help. Help. Help. Remit cable.

Another letter to his wife, throwing light on his mental content in an angry mood, was as follows:

Written under duress.

April 10, 1902.

ORDERS.

To Mrs. G. B.

(1). You are hereby ordered and directed by me, your lawful husband, to bring any money you may receive from Mrs. C. B., my mother, or from any party or parties on my behalf, to the above lunatic asylum and to deliver the same intact to me and you are forbidden to remit by mail any money to me or deliver any money to Dr. Drew or any person or persons on my behalf. You are ordered to come yourself or send Queenie G. B., my daughter, with the said money, but not to entrust the same to any other person or persons.

(2). You are ordered to cause Queenie G. B. and Clarence W. B., my children, to write to me forthwith and to have the letters here by Saturday, April 12, 1902.

(3). You are ordered to go to the State Board of Lunacy at once and make a legal demand for the father of your children's release from unlawful custody.  
(Signed) H. J. B."

A copy of the above orders has been sent to my attorney, Mr. Fishacher, Esq.

The foolish arrogance of these "orders" might come from a paranoiac or an imbecile, but the paranoiac, if educated, has commonly more sense than to write such stuff to any one. The following explains itself:

February, 21, 1902.

To the Manager of the Pinkerton Detective Agency, Boston, Mass.:

Dear Sir:—Upon receipt of this letter please send a reliable, trustworthy and shrewd detective to see me. Tell him to bring blank drafts with him. I was robbed and unjustly sentenced to Massachusetts State prison and two months before the expiration of the sentence two unscrupulous quack doctors have conspired with officials and railroaded me to a lunatic asylum. I complain of foul play. I will not write full particulars but will explain fully to your man. I have received a cable message from my mother in London, England, and my friends will be here soon. I am engaging reputable lawyers to reopen my case and to get an investigation. I am a lawyer. I have startling disclosures to make to your agent. Please make your charges as reasonable as possible and remember I am an attorney and may need you for many cases. Send your man at once and on his arrival I will pay him a good substantial fee. I have powerful friends. I have been sent to an asylum to save the officials from exposure, etc. Foul play. I cannot send any remittances by mail as I do not want any one to know who I am drawing on or where my money is, owing to the trustee and attachment law being so strict in this State, and as I have legal trouble with my wife and she is looking to get alimony and to attach my properties, etc., and the officials here would know where cash is if I drew through them, as I should have to get a draft from them. Send good man with blank drafts. I will pay his fare and all expenses. Send as quickly as possible and be sure he sees me and tell him to be silent as to who he is. I need your man to hunt up evidence, etc., etc. Yours respectfully,

(Signed) H. J. B.

This letter to the Pinkerton Agency, it may be noted, mentioning "legal trouble with my wife," antedated his loving letter of March 12th by eighteen days. He would not forget to write "bring blank drafts" in each of his many letters to lawyers, evidently thinking this suggestion best calculated to bring the lawyers quickly, and usually in his letters to the latter he promised payment in full for past services. When one lawyer came to see him, our patient did use the blank drafts brought as suggested, but he drew on another lawyer with whom he had formerly been on a friendly footing. This lawyer friend had also been promised full payment if he would come from New York City to co-operate with Massachusetts attorneys to obtain our patient's release. He had also been admonished to bring blank drafts. This New York attorney was evidently slightly indignant to find that our patient had drawn on him in favor of another lawyer. Some letters were exchanged which we did not see, the Boston lawyer, who was paid by drafts on the New York attorney, acting as mail carrier for our patient. The following letter was written to the New York lawyer, in reply, evidently, to a sharp letter from the latter, who had discovered that his some-time friend, our patient, was not acting on the square with him. It reads as follows:

March 27, 1902.

My Dear Dave:

Your letter duly received and contents noted. Your extraordinary epistle and the peculiar tone and indignant manner in which you write can only be appreciated by me, as I understand you are a fighter and an indomitable "toner," and I verily believe you would rather fight than eat, and your bickering and quarreling with me, your own client, is proof to me that you are a very eccentric attorney in some small matters, but with all thy faults I love thee still, and look upon you as the faithful "wondertoar," young and reliable, checkmating general that you always were. I mean you to try to checkmate my enemies in a legal manner. Let me explain a little. The fact that you say you never received a pawn ticket for ring and stud shows me that you have never received it but I solemnly declare that I delivered it to the prison officials with a letter addressed to you, stating that the ring and stud had nearly run out and sent it to you as a present if it would be of any use to you. This is over four years ago and if you have never received it then it only adds one more crime and felony to the list to be laid at the door of the unscrupulous prison officials and I am not to blame and you are not to be blamed. \* \* \* Now let it be distinctly understood that I am not blaming you in any matters but merely wrote you the other day because Mr. Bruorton stated that he had received a letter from you and that you

asked him to go to the asylum and find out if I had the money to send to you for expenses and that you would have the affidavit drawn and sworn to if he desired you to do so and Mr. Bruorton stated that he wrote you that you could use your own judgment as to the affidavit, but would not be responsible for the costs or for your expenses or for any work you might do for me. Upon receiving such a letter I immediately wrote to you to look at the past etc., etc., as I think, in view of the past and taking into consideration that I owe you nothing and that I have always faithfully and honestly remunerated you for your services that, to an old client, you need not be so particular and parsimoniously inclined. Mr. Fishacher, a Boston lawyer, was here yesterday with my wife and she stayed all day and dined with me. I delivered a letter to my wife to have registered a draft, etc., to you. Please come on and see this man at once on receipt of the cash from his brother. His brother's address is on the draft. In the meantime if any money arrives, I shall telegraph you \$50, as I did before through the Western Union Co., as I have received a heartrending letter on Monday from my father and mother who state that they are sending the money. Have faith in me, my brave legal warrior, and be patient and do not write recriminating epistles acting as an injured man when you are not. You have a peculiar faculty for quarrelling. Do you remember the order of Judge Newberger dangling in mid air and Judge Pratt's stays (while you wait) and the conflicting orders and toners moving mysteriously as if by peculiar power and severance supplementary orders, and Referee Hess and Referee Stein being removed. Dangerous on the other side. Look out I am coming soon. I rest my case. Your affectionate friend and client

(Signed) H. J. B.

P. S. Write soon.

It would seem, on the face of it, that a lawyer who would try to work the confidence game on his professional brothers must be very insane and it ought to be known in this connection that most of the attorneys to whom our patient wrote either did not notice his letter or else inquired by telephone or letter of the asylum officials concerning the patient. Attorney Fishacher knew the man and was trying to serve him, for his family's sake, in an ethical and honorable way. Another Boston attorney seemed to swallow his bait whole, made frequent trips to the State farm, came and went, as a rule, without consulting with the asylum officials, until he obtained our patient's draft for \$1,800, \$300 for himself and \$1,500 for a New York law firm as whose agent he professed to be acting. After this his visits were infrequent and we do not know how much he realized on those drafts, nor how he felt when he heard from that New York attorney on whom the drafts were drawn, and whom our patient addressed as "My dear Dave."



The conclusion was forced upon us that our patient was not a true paranoiac or monomaniac. I will admit that, using the term paranoia in its broadest, generic sense, it may include most kinds of mental deficiency outside of dementia paralytica and the acute psychoses embraced by the manic-depressive syndrome. I do not forget that Dercum<sup>2</sup> and others would include under paranoia all cases of chronic systematized delusional insanity, and that Ziehen writes of stuporous and incoherent paranoia. Dercum's classification seems eminently rational and helpful, if we agree as to the limitation of terms, but we hold that our patient's so-called delusions had not the true ring, and to speak of "stuporous" and "incoherent" paranoia is, seemingly, to confuse paranoia with dementia præcox, or a toxic insanity with confusion, else to give a class name to a late and unusual phase of a disease. We believe the phrase, "constitutional inferiority with moral perversion," best covers our patient's abnormality. The direct question, "Was he insane?" cannot be properly answered by yes or no. There is no doubt but that he knew the difference between right and wrong in abstract, and with reference to every dishonest act he did, but this could be said of almost all paranoiacs. The weight of evidence seems to show that he could act or refrain from acting according to his judgment of which was the best policy. The fatuous folly of his judgment is beyond dispute. Insincerity, duplicity and mendacity were characteristics evidenced at every interview and in every letter he wrote. To the governor and the British consul his letters were couched in technical and well-turned phrases. To the lawyers he emphasized the fact of his being a Jew and of having powerful friends and rich relatives. To these he wrote of being robbed and illegally sent to an insane asylum, but to his mother he wrote very little about being robbed. To her he cried I am hungry and abused. "Help. Help. I shriek a sane man from a mad house." We know this was not delirium. It was carefully penned, all the exclamation points were in place. The motive was, manifestly, to touch the maternal heart, to work on the mother's nerves that she should send more gelt quickly. There was just a little basis for his claims of being robbed, but not by any prison official. A certain New York lawyer had obtained money from patient's mother, more than one hundred pounds, ostensibly for her son's

defense. There was an effort to get more money, as the attorney's letters, which the mother forwarded, plainly evidenced. Our patient knew this, but it suited his purpose to make charges against state officials, because these charges received attention. To charge lawyers with getting money from his mother by misrepresenting the case would avail him nothing. People would laugh at that. May I requote a few significant lines to "dear Dave" who resented being drawn on in favor of the Boston lawyer. "I verily believe," J. B. writes, "you would rather fight than eat and your bickering with me, your own client, is proof to me that you are a very eccentric attorney in some small matters, but with all thy faults I love thee still." This illustrates our patient's cleverness at cajolery and counts against paranoia, because a sense of humor is almost as rare to the paranoiac as a sense of honor is to the moral imbecile. It is difficult to conceive of a true paranoiac "jollyng" another about anything.

The more we studied our patient, the more it seemed to be true that his mistrust of every one, his "delusions," if you please, were not the delusions of psycho-pathology, but rather false beliefs based on his peculiar experiences and his own self-consciousness. He had little knowledge of the reactions of an honest man's mind. The altruistic sense and the sense of honor were rudimentary, but these are the products of man's higher evolution and are probably rudimentary in most habitual and instinctive criminals. The primordial instincts of self-preservation and love of offspring seemed fairly developed, albeit his faulty judgments and ignorance of men and institutions, as they are made his foolish pertinacity in wrong doing, seem suicidal. Read "Hard Cash," by Chas. Reade, he would urge, in defence of his ideas. "Hard Cash" had apparently shaped our patient's beliefs and destiny in more than one sense. After we had studied H. B. for more than three months, I advised that he be returned to the prison from which he was committed. He was accordingly returned to prison, as per Section 101, Chapter 225, of the Revised Laws of Massachusetts, and held for about seven months, during which time there was no essential change in his condition. Early in December his mother came from England and was allowed to take her son, as his minimum sentence had expired. We were informed by the

prison physician that his mother insisted, to J. B., that she had all the legal knowledge necessary to free him and would not allow him to talk. "She was the only mortal able to control him in this respect," the physician added. It was understood that his mother proposed taking our hero to South Africa. The inference was not that the talented mother bore malice against that unhappy land, rather that no indictment stood against our sometime patient there.

"If this man should kill some one would you hold him responsible?" was pertinently asked by a physician whom I advised of my purpose to recommend the return of H. B. to prison. Being persuaded that there was no pathological condition present that would compel him to commit a homicide, I would hold him responsible as I would hold another weak-minded brother responsible. Not absolutely responsible, in a moral sense, nor entirely irresponsible, as the man suffering from brain disease, but sufficiently responsible to be kept in prison. Too much responsible to be allowed to prey on the truly insane. It is true that graded responsibility is debatable in medicine and not recognized by the courts, but we are not entirely responsible for the defects of the courts. The natural instinct of civilized man is to save life, his own first, then others. This order may even be reversed, in the highest types, in favor of the nearest and dearest by ties of blood. So it is that the instinct to kill is against nature and raises the presumption of psycho-pathology. The acquisitive instinct, on the other hand, is according to nature and an exaggeration of this instinct is presumptive evidence only of moral deficiency, even to the making of a "common and notorious thief." We do not know that H. B. had any impulse to kill or do bodily injury to any one. His mother's testimony was to the contrary. Moral imbeciles are often exceedingly cruel and enjoy beating, cutting and killing for its own sake or for the sexual frenzy excited most intensely, so to speak, by the taste or smell of blood. Dr. Howard's heroine (!) Mizpra,<sup>3</sup> was considered entirely irresponsible. Possibly so from a purely academic viewpoint. It is doubtful if the courts would support the contention, and practical psychiatry might classify the case as not amenable to hospital methods. It was very clever of the author, therefore, to have Mizpra hurled in to a yawning abyss before she reached an insane asylum.

To glance again at the mother's analysis of H. B.'s case, is it not reasonable to assume that the man's objective mind was in abeyance, that the subjective mind held supreme sway, forcing the individual on in his irrational course "as fatally as the moth flies in the flame?" Was his oft-declared purpose to fight his enemies in the courts, to "pursue them with the dog whip of the law and hang them on the gibbet of public opinion" a manifestation of the "one grim resolve, the 'idée fixé' of the monomaniac?" Concerning the subjective mind hypothesis, a review of much of Thomas Hudson's<sup>4</sup> dual mind thesis would be needed for an adequate consideration of this phase of the subject. I will only observe that if the "subjective mind" is identical with an immortal soul, as Hudson holds, and is responsible for the atrocious acts of some persons on this planet, then the ancient theological conception of an unquenchable lake of burning brimstone seems to have a justification. As to our patient's passion for litigation being the fixed idea of a monomaniac, much more might be said than time will allow. A love of litigation may be but a manifestation of a quarrelsome disposition which, unfortunately, is not limited to the insane. So far as it is an evidence of insanity, it points to imbecility quite as much as to paranoia. The same may be said of inordinate vanity and love of notoriety, which is nourished by the publicity of the courts. H. B. might have engaged and discharged a dozen lawyers while in prison for the mere love and excitement of it. It is probable that he did not intend to pay any one of them, except by promises or bogus drafts. Experience had taught him that letters to lawyers and state officials were forwarded. He was a forceful writer and a ready talker and loved to do both. Most of all he longed to get into court to show off his talents before newspaper reporters and a crowd. When pressed on cross examination, concerning the false charges he was reiterating against the prison officials, he once declared doggedly, "A man has a right to defend himself." This was the key to many of his "delusions," created for a purpose. He believed all men to be dishonest tricksters; this was a natural subjective reflection, and he was doubtless disgusted to find so many lawyers who did not think as he did. Life in "Cherry Hill" was rather monotonous, why shouldn't he keep on engaging attorneys till he found one of his own kind, who would



help him into court or get his letters published in the sensational newspapers? He was stubborn and opinionated, like many weak-minded men, and some others. His little knowledge of the law puffed him up and made him intolerant of advice, but he was not dominated by "one grim purpose." On the contrary, he was vacillating as most men, at least. Today he knew his wife was true and loyal, tomorrow, he was sure she could not be trusted in anything. This week he was willing to follow the advice of his mother and Attorney Fishacher, the next week his only reliable legal advisor was the Boston attorney who was paid by drafts on the lawyer in New York. It does not seem wise to generalize broadly about these mentally inferior and morally perverted ones. Each case must be decided on its own merits. One might strongly defend the postulate that all instinctive and incorrigible criminals are insane, but practical considerations would forbid that these mingle with those suffering from brain disease. Indeed, the doctrine of limited responsibility is not incompatible with the administration of a modern humanely managed prison, and it ought to be known that the isolation building for incorrigibles called "Cherry Hill," at Charlestown, has very large rooms, larger than any single rooms I know of in an insane hospital, well-ventilated and well-lighted through the roof, with good plumbing, running water and a good bed in each room. Humanity has a right to expect similar provisions in each penal institution, for the line of demarkation between sanity and insanity is particularly shadowy in the criminal classes, and it is better that asylum features be introduced into prisons than that the hospital and asylum standards should be lowered by prison necessities.

I would express the opinion, in closing, that the committing physicians were fully justified in giving H. B. the benefit of every doubt. They were supported, too, in the diagnosis of "litigious paranoia" by the teachings of some of the best authorities. My specified and implied reasons against the diagnosis run through this essay. I will only repeat that while paranoia and constitutional inferiority with moral perversion (moral imbecility) have much in common, may indeed be well called "first cousins," they ought to be separated clinically as readily as hereditary ataxia and locomotor ataxia are recognized

as distinct disease forms. The parallel would not hold as to anatomical pathology, because these spinal degenerations have a clearly defined and well known pathology, but that paranoia is a veritable psychical disease entity is evidenced by its distinct and fairly uniform stadia. It is essentially progressive, even though chronic, characterized by systematized delusions and hallucinations, especially of hearing, in the majority of cases. The systematic evolution, the distinct period of introspection and depression, followed by a period of delusional exegesis of his own morbid subjectivity, and the hallucinations which may begin to spur him on, followed again by an expansive and ambitious period, with its change of personality, these are the landmarks by which we may know the true paranoiac. The moral imbecile is not so. He has false beliefs enough, certainly, but they change "with every wind of doctrine," like those of ordinary weak mortals. He has no period of depressive introspection. What little sense and judgment he has he keeps to the end of the chapter, barring the ordinary wear which all flesh is heir to. It is true that the moral imbecile may be far below the intellectual plane of the paranoiac—the differential diagnosis does not rest on the degree of mental defect. That the imbecile may be so defective as to be wholly irresponsible goes without saying. But call his condition "moral insanity," "the insanity of degenerates" or "phrenasthenia," if you please, yet, in the absence of substantial evidence of brain diseases, the natural criminal product of a neurotic organization and a wrong education hardly fits the legal conception of insanity. When the impulse of the perverted imbecile is towards rape and murder, as it so often is the common conception of insanity should be strenuously opposed before opening the asylum doors to let the perverted one free, but when inordinate vanity and infantile judgment lead the individual habitually to seek gratification in the publicity of the courts, the hospital physician's duty to society may not necessitate a rigid adherence to medical<sup>5</sup> as against legal conceptions of responsibility. As the morbid man bent on suicide by hanging hardly ever shoots himself, so the imbecile, seeking gratification through the courts, rarely gratifies his unreasoning anger by personal violence to the object of his spite. Therefore it is that the weak-minded litigationist may be less harmful at large than

among the insane, than among other insane, if you choose to have it so expressed.

NOTE—Several weeks after this paper was written, and less than five months after our hero was released on parole from the State prison, letters began to come from J. B. from New York City, registered letters, some of them, notifying the asylum officials that legal proceedings were about to be begun for the release of several inmates of the Massachusetts State Asylum for Insane Criminals. Letters came from other "counselors at law" in the same tone and spirit giving notice of legal proceedings about to begin, "having been retained by Mr. J. H. B., etc." From these letters we learned that J. B. was "highly prosperous," "working day and night," "employing several lawyers," "supported by the most prominent people of our city (New York) who speak in the highest terms of his (J. B.'s) indomitable business acumen and strict honesty." One of these assistant counselors at law, J. B.'s "brave legal warrior," "Dear Dave," subsequently came on from New York City demanding to see certain patients, in the name of J. B. and the "Constitution." "Dear Dave" brought two baskets of fruit to asylum patients who had been wheedled out of their small supplies of delicacies for the benefit and promised favor of J. B., then "under duress," when he should have his "enemies" figuratively on their knees before him. I wish to record this because it seems, on its face, an honest act and a promise kept, so far as it goes, it indicates sincerity, and any evidence of sincerity considered in relation to J. B.'s history, would strengthen the hypothesis of a degenerative psychosis. It seems that J. B. did not go to South Africa. His mother, we understand, settled the indictments against him in New York, and there is evidence that his "indomitable business acumen" has been exercised on as high a plane as the "promoting" and "floating" of the "Iowa Pacific railroad" and the "International Cable Company."

#### DISCUSSION.

THE PRESIDENT: We are all very much indebted to Doctor Drew for his paper. I do not remember ever to have listened to the reading of a more interesting and valuable human document. To the ladies present it must be very agreeable to find applicable, to the case under discussion, a reversal of the man's imperative: "*Cherchez la femme*." For here the father would seem to be responsible. The conundrum of Doctor Drew is now before the Association. Do you wish to register your guess or will you give it up? (Laughter).

<sup>1</sup> See "Paranoia: Systematized Delusions and Mental Degeneration," by J. Séglas. Translated by Dr. Wm. Noyes. *Journal of Nervous and Mental Diseases* March, April, May, June, 1888. Also "Litigious Insanity" by Dr. Edward B. Lane. *Trans. American Medico-Psychological Association*, 1902.

<sup>2</sup> *Journal of Mental and Nervous Diseases*, September, 1901.

<sup>3</sup> *The Perverts*, by Wm. L. Howard.

<sup>4</sup> *The Law of Psychic Phenomena*, by Thomas J. Hudson.

<sup>5</sup> Peterson's brief and flexible definition of insanity, as good as any, reads, "Insanity is a manifestation in language or conduct of disease or defect of the brain."

## SOME OBSERVATIONS UPON BLOOD PRESSURE IN THE INSANE.

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The literature on the subject of blood pressure is increasing rapidly, and much pleasure and profit might be derived from reviewing the major part of it, but I will resist the temptation and merely call your attention to certain articles which have a direct bearing on the results which follow. For a long time it has been conceded by some that the blood pressure was increased in depressive states and decreased in excited conditions. In 1900, Maurice Craig, in an article entitled "Blood Pressure in the Insane,"<sup>1</sup> says: "We may now, I think, take it as accepted that in states of acute mania the blood pressure is low, whereas in the majority of cases of melancholia the blood pressure is raised; in other words, that with the affective disorders of the mind there is an alteration in the tonicity of the vasomotor system." Pilez<sup>2</sup> reached the same conclusion, and in one of his cases of circular insanity the blood pressure varied from 60 mm. in the excited state to 160 in the depressed period. It has been found, however, that in agitated melancholia the blood pressure is low, and all the evidence seems to indicate that a low blood pressure in the insane accompanies motor restlessness. The article by Dr. Craig, from which I have quoted, and another by Dr. Henry L. K. Shaw<sup>3</sup> are two which I have found most interesting from the standpoint of the alienist. The latter contains a number of references to foreign literature, to several of which I shall direct your attention. Pilez found the blood pressure normal in the early stages of paresis, but low in the terminal stage. Heim<sup>4</sup> found a high blood pressure in neuras-



thenics and hysterical children, and considered this a diagnostic point. The above references concern the points which will be of most interest to us in the consideration of the observations which form the subject of this paper. The other works to which Shaw refers deal with the effect of therapeutic measures upon the blood pressure, or with the history of the various methods of observing it.

Mention should be made of the investigations made at the Royal Asylum, Aberdeen, by Drs. Bruce and Alexander on cases of melancholia and of mania. Justice cannot be done to their work in a brief abstract, and I therefore append references to their published writings.<sup>5</sup>

Early in 1902, Dr. Harvey Cushing of the Johns Hopkins Hospital, introduced to us his modification of the Riva-Rocci apparatus for determining blood pressure, and presented us with an instrument. Dr. Cushing's modifications are merely mechanical, and do not affect the principle of the apparatus. I wish to especially call your attention to the convenience of the Riva-Rocci instrument. Shortly before we began using it we were having constructed the elaborate apparatus of Mosso, which one might say requires a room to itself, and has as another disadvantage to its use that a number of patients are in no condition to be brought to this room. A number of those that might be would endanger the rather expensive apparatus. The form of the Riva-Rocci which we have used we have put together ourselves, and I am sure that three dollars will quite cover the cost of each instrument. It consists first, of a narrow rubber bag with linen covering with hook and loops, by means of which it is secured about the patient's arm. This bag communicates by rubber tubing with one arm of a glass T inserted in the cork of a wide-mouthed bottle, which latter is partly filled with mercury, and which has a straight glass tube with millimeter scale attached also passing through the cork, and from this the degree of pressure is read. The other arm of the above-mentioned T is connected by rubber tubing with a pressure bulb, such as is used on a Paquelin cautery. There is also a branch from the first tubing closed by a pinch-cock, by means of which the air is allowed to escape from the instrument after the observation has been made. To operate the apparatus, the arm band is fastened about the patient's arm above the elbow,

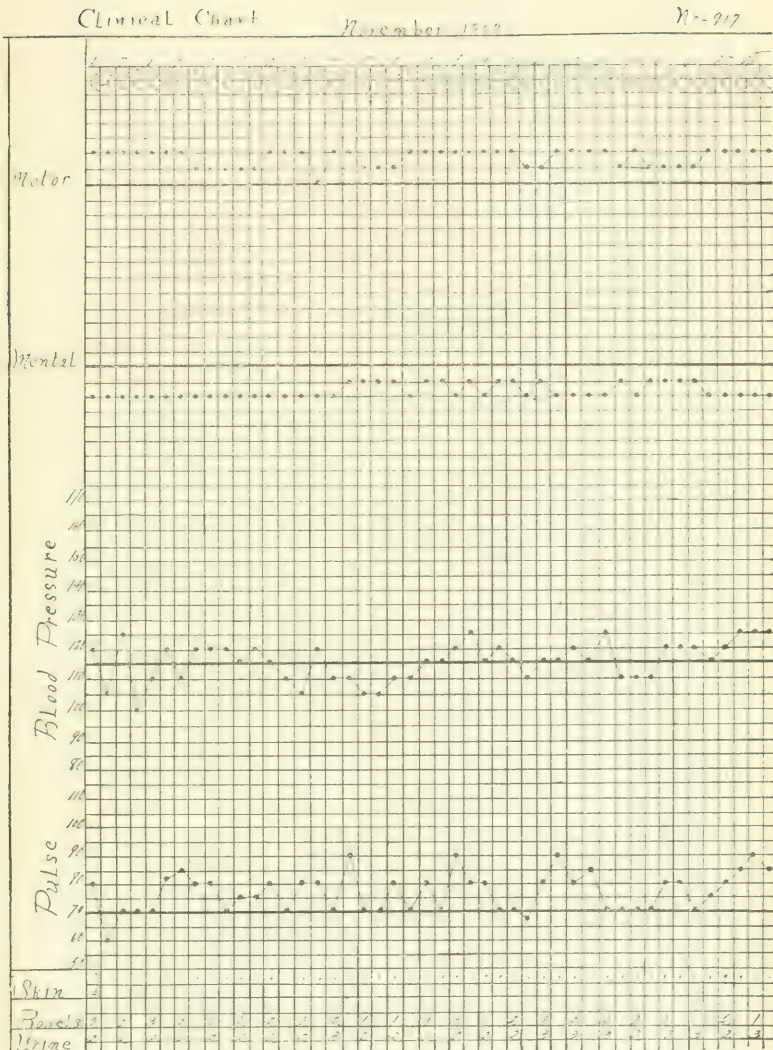
the radial pulse is palpated, and air is forced into the apparatus by means of the pressure bulb. The height of the column of mercury at which the pulse disappears is noted, the pressure carried slightly beyond, the air slowly allowed to escape, and the height of the column of mercury at which the pulse returns is noted, and the mean of these two observations gives us the systolic pressure. Some observers only note the point where the pulse disappears, others only the point where it reappears. Either is correct, but taking both secures accuracy. Recently Dr. Cook <sup>6</sup> has described this instrument in a less homemade form, and discusses its manipulation very fully.

Stanton <sup>7</sup> has devised a very similar apparatus, which seems to have certain advantages over the Riva-Rocci, though practically differing from it only in the width of the arm piece and in using a foot-pump to obtain the necessary air pressure. By means of his apparatus he is able to obtain both the systolic and diastolic pressures, and from them calculate the mean pressure. I have tried his method with the Riva-Rocci apparatus with an assistant at the air pump, but was not able to obtain satisfactory readings of the diastolic pressure, due, I think, to the narrow arm piece, which Stanton considers the great defect of the Riva-Rocci apparatus. Jackson <sup>8</sup> has compared the Riva-Rocci with the Gärtner, and finds that they give uniform results except in cases of arteriosclerosis, where the former instrument reads too high. In regard to the presence of arteriosclerosis as a complicating factor I wish to call your attention to a very interesting article by Dr. Clifford Allbutt, on "The Rise of Blood Pressure in Later Life," <sup>9</sup> in which he says: "In sufferers from arteriosclerosis—I use the name arteriosclerosis loosely for present convenience—exorbitant pressures are often, but by no means constantly, found. Between disease of the arterial tree and blood pressure there is no direct relation in arterial disease; even in the extreme degree of it normal or relatively low pressures are commonly observed, but I often notice that in cases of arterial degeneration the reading extends uniformly over a wider range of the scale, say, over 15 or 20 units, in which cases I record the mean figure and the extremes. In denying that elevation of blood pressure depends directly upon arteriosclerosis, I have stood alone for some years against the high authority of Von Basch and many others; but I think

that some recent observers now admit the validity of my contradiction, and the matter is one of cardinal importance."

Since our introduction to the Riva-Rocci instrument we have taken a great many blood pressure observations with a view of determining the value of such observations in mental diseases, both as an aid to diagnosis and to treatment. It is the object of this paper to present the results which we have hitherto obtained. At first a number of single observations were made on a number of patients, but we soon realized that by such methods accurate results could not be obtained, and it was thought if we regularly measured the blood pressure of several cases during the whole course of their mental alienation with the changes which probably took place as recovery, or other change occurred, that we would have more instructive and more accurate data. It will be remembered that the Riva-Rocci apparatus shows the systolic pressure, and this, I think, serves our purpose sufficiently well.

As we did not wish to go to the expense of having charts for blood pressure made until we became satisfied with the form, we have used square ruled paper, which the nurses have divided as indicated. Also, for convenience, the observation has been recorded on a scale of fives, which gives approximate results. Should we consider the plan hitherto pursued sufficiently valuable to continue; we will have the blood pressure scale divided into millimeters. We have had charts made of the blood pressure, mental and motor condition, the condition of the skin, and the pulse in all cases which have been under continuous observation, and in certain cases the temperature and respiration have also been noted on the regular chart. A sample chart is appended. For convenience of consideration the results of these observations have been tabulated in the case abstracts which follow. Cases with arteriosclerosis or with organic heart or kidney disease were not observed at first, as they would necessarily impair the results. The position of the mental and motor curves is indicated by plus or minus, the average position being normal in a few instances, and in a few others varying to such an extent that plus and minus seemed the best method of indication.



Showing blood pressure, motor and mental chart reduced four times. Since the preparation of this paper, these charts have been amended so that the lines above and below the normal (motor and mental) lines signify a definite condition (quiet, restless, excitement, etc.) but so far an entirely satisfactory arrangement has not been obtained.



It is extremely difficult to indicate graphically the curve of mental activity in the majority of cases, and I feel that in a number of our cases a plus condition is shown incorrectly. The nurses, as a rule, seem to regard insane ideas as a plus condition and to lose sight of any underlying dementia which is not especially marked. This is shown in Case III, in Case VIII in part, and Cases XII and XV. Further, the mental activity may be more or less obscured by the emotional condition. The best solution seems to be to discard both motor and mental curves and substitute for them brief descriptions of the patient's mental condition and habits of living. In the notes which follow I have given the nurse's conception of the position of the curve. It must be remembered that these blood-pressure readings have been taken in an ordinary way, just as temperature, pulse and respiration observations are often made. No attempt was made to isolate the patient from sights or sounds which might affect the reading, nor was the patient made to lie down if she was up and about, as it was desired to test the value of blood pressure observations as an ordinary clinical procedure. However, nearly a third of them were made while the patient was in bed. While observers differ as to the effect of posture on the blood pressure, the consensus of opinion seems to be that we find a higher blood pressure when the patient is in a sitting position than in a recumbent one. The factor of posture may be ignored in a given case when all observations are made when the patient is in one position; that is, either sitting or lying, but in comparing cases this factor should be considered. One conclusion to which we came was that the continuous taking of the blood pressure has but little value in the majority of mental cases, and the plan has been adopted of taking it for a limited period, then discontinuing it and taking it again for another period whenever we felt there was a change in the motor or mental condition of the patient. I believe that the average of a week's observations gives as accurate a measure as when they are continued for a longer period. Frequently the first two or three observations are higher than the others, due possibly to an element of fear in the patient, so that I am not satisfied that one or two accurately show the blood pressure.

Case I. No. 824. Woman aged twenty-five. Had an attack of depression September, 1897, to May, 1898. Present attack is excitement, and be-

gan May 10, 1901. She was discharged from the hospital July 19, 1902, and completed her recovery at the seashore. Urine showed slight trace of albumen, no casts. Heart normal.

| DATE                  | MENT. CURVE | MO. CURVE | AV. B. P. | NO. OBS. |
|-----------------------|-------------|-----------|-----------|----------|
| Jan. 22-31.....       | +           | +         | 101.6     | 38       |
| Feb. 1-17.....        | +           | +         | 109.5     | 57       |
| Feb. 18-March 9.....  | +           | +         | 110       | 78       |
| March 10-April 8..... | +           | +         | 106.4     | 101      |
| May 1-16.....         | +           | +         | 117.78    | 61       |
| May 17-31.....        | +           | +         | 109.66    | 59       |
| June 1-10.....        | +           | +         | 111.12    | 40       |
| June 11-30.....       | +           | +         | 110       | 56       |
| July 1-15.....        | +           | +         | 111.5     | 60       |
| July 16-19.....       | +           | +         | 109.5     | 12       |

At 8 a. m. of the day of her discharge the blood pressure was 135, and there was a greater degree of motor restlessness.

Case II. No. 544. Woman aged twenty. Diagnosis, dementia præcox. Had been an inmate of the hospital since Oct. 31, 1898. Her mental trouble dated from the winter of 1895-96. Heart irregular and shows hemic murmur. At one time urine showed albumen, no casts. Has sudden attacks of violence.

| DATE                   | MENT. CURVE | MO. CURVE | AV. B. P. | NO. OBS. |
|------------------------|-------------|-----------|-----------|----------|
| March 15-29.....       | —           | —         | 124       | 15       |
| March 30-April 12..... | —           | —         | 131       | 14       |
| April 14-19.....       | —           | —         | 125.8     | 6        |
| May 1-31.....          | —           | —         | 120       | 31       |
| June 1-28.....         | —           | —         | 118.8     | 22       |

Case III. No. 798. Woman aged twenty-six. Admitted to hospital March 29, 1901. Present is third attack, the first being in 1890 and lasting several months, the second lasting from October, 1892, to December, 1893. Onset of present attack was about Dec. 25, 1900. Is now in a demented condition. Heart rhythm somewhat disturbed, otherwise negative. Urine showed trace of albumen, no casts.

| DATE                  | MENT. CURVE | MO. CURVE | AV. B. P. | NO. OBS. |
|-----------------------|-------------|-----------|-----------|----------|
| Feb. 1-16.....        | —           | +         | 141.93    | 15       |
| Feb. 17-March 4.....  | —           | +         | 149.87    | 16       |
| March 5-19.....       | —           | +         | 146       | 15       |
| March 20-30.....      | +           | +         | 135       | 19       |
| March 30-April 8..... | +           | +         | 141       | 18       |
| April 9-18.....       | +           | +         | 137       | 16       |
| May 5-8.....          | +           | +         | 136       | 7        |
| May 9-18.....         | +           | +         | 133       | 19       |
| May 19-28.....        | +           | +         | 133       | 20       |
| May 29-June 7.....    | +           | +         | 129       | 20       |
| June 8-17.....        | +           | +         | 130       | 20       |

Case IV. No. 924. Woman aged forty-one. Admitted to the hospital April 24, 1902. Shows depression and mental confusion with a good deal of motor excitement. Patient had a similar attack at twenty-one years, lasting three months. Had been mentally unstable ever since. Her present illness began eleven days before admission.

| DATE                 | MENT. CURVE | MO. CURVE | AV. B. P. | NO. OBS. |
|----------------------|-------------|-----------|-----------|----------|
| April 30 May 12..... | none        | +         | 154       | 25       |
| Oct. 9-31.....       | +           | +         | 116.63    | 46       |

Discharged from hospital Jan. 19, 1903, improved.

Case V. No. 917. Woman aged twenty-nine. Mental symptoms began February, 1902. Patient was admitted to the hospital April 14, 1902. Was removed against advice June 9, 1902, and readmitted July 11, 1902. Patient was depressed, emotional and exhibited great motor restlessness. Heart negative. No arteriosclerosis. Urine negative.

| DATE                  | MENT. CURVE | MO. CURVE     | AV. B. P. | NO. OBS. |
|-----------------------|-------------|---------------|-----------|----------|
| July 16-Aug. 7.....   | none        | +             | 108       | 45       |
| Aug. 7-31.....        | none        | +             | 109.6     | 45       |
| Aug. 31-Sept. 21..... | —           | +             | 112       | 45       |
| Sept. 22-Oct. 13..... | —           | +             | 118.7     | 39       |
| Oct. 14-Nov. 5.....   | —           | +             | 118       | 46       |
| Nov. 6-28.....        | —           | +             | 113       | 47       |
| Nov. 29-Dec. 21.....  | —           | +             | 119.5     | 41       |
| Dec. 22-Jan. 13.....  | —           | +             | 115       | 30       |
| Jan. 14-Feb. 3.....   | normal      | nearly normal | 125       | 40       |

Patient was discharged Feb. 3, 1903, much improved.

Case VI. No. 977. Woman aged twenty-seven. Has appearance of being ten years younger. Patient had typhoid fever at fifteen and twenty-four. Was brought to the hospital Sept. 27, 1902, from Danville Sanitarium, where she had been since March, 1902. Is in condition of incomplete dementia, with attacks of sudden violence. Heart negative. No arteriosclerosis.

| DATE                  | MO. CURVE | MENT. CURVE | AV. B. P. | NO. OBS. |
|-----------------------|-----------|-------------|-----------|----------|
| Sept. 30-Oct. 21..... | normal    | +           | 125.54    | 37       |
| Oct. 22-Nov. 12.....  | +         | +           | 123.42    | 38       |
| Nov. 13-Dec. 4.....   | —         | —           | 113.72    | 43       |
| Dec. 5-26.....        | —         | —           | 114.75    | 41       |
| Dec. 27-Jan. 17.....  | —         | —           | 117.2     | 27       |

Case VII. No. 979. Woman aged twenty-six. There is an indefinite mental history dating back six years to the time of her graduation from the high school. She has been teaching in the public schools from that time until Jan. 1, 1902, when the active mental symptoms were noticed. Was brought to the hospital Oct. 12, 1902. Heart negative. No arteriosclerosis.

| DATE                 | MO. CURVE | MENT. CURVE | AV. B. P. | NO. OBS. |
|----------------------|-----------|-------------|-----------|----------|
| Oct. 2-Nov. 7.....   | +         | —           | 120.6     | 44       |
| Nov. 8-30.....       | ±         | —           | 118.47    | 46       |
| Dec. 1-23.....       | —         | ±           | 127.12    | 37       |
| Dec. 24-Jan. 15..... | —         | +           | 126       | 39       |
| Jan. 16-28.....      | ±         | —           | 120       | 24       |

Case VIII. No. 946. Woman aged fifty-one. Admitted to the hospital June 16, 1902, after attempting suicide. Mental symptoms had been noticed five weeks before admission. Had transitory delusions. Was depressed, restless and emotional, and at times much confused. Patient improved quite markedly up to a certain point where she had frequent emotional attacks, and begged to go home. Heart negative. No arteriosclerosis. Urine showed a trace of albumen, no casts.

| DATE                  | MOTOR | MENTAL | AV. B. P. | NO. OBS. |
|-----------------------|-------|--------|-----------|----------|
| July 16-Aug. 3.....   | +     | +      | 106       | 26       |
| Aug. 4-25.....        | +     | +      | 114.5     | 40       |
| Aug. 26-Sept. 16..... | +     | +      | 124       | 41       |
| Sept. 17-Oct. 9.....  | +     | +      | 125.1     | 39       |
| Oct. 9-31.....        | +     | +      | 128.4     | 44       |
| Nov. 1-22.....        | +     | +      | 123       | 45       |
| Nov. 23-Dec. 15.....  | +     | ±      | 111.47    | 44       |
| Dec. 16-Jan. 6.....   | +     | —      | 115.7     | 37       |
| Jan. 7-29.....        | +     | —      | 115.3     | 29       |

Case IX. No. 999. Woman aged thirty-two. Admitted to the hospital Dec. 10, 1902. Mental symptoms date back two years to the birth of her last child. Depression and self-accusation were the most marked symptoms. Had twice attempted suicide. Heart negative. No arteriosclerosis.

| DATE                      | MOTOR | MENTAL | AV. B. P. | NO. OBS. |
|---------------------------|-------|--------|-----------|----------|
| Dec. 13.-Jan. 4, '03. ... | —     | —      | 120.4     | 38       |
| Jan. 5-27 ...             | —     | —      | 121.34    | 46       |
| Jan. 28-Feb. 19 ...       | —     | —      | 118.24    | 37       |

Case X. No. 988. Woman aged twenty-one. Admitted to the hospital Nov. 9, 1902. Became exalted over religious matters about a year before, since which time she had become depressed and thinks she has committed the unpardonable sin. Heart negative. No arteriosclerosis. Urine negative.

| DATE                 | MOTOR | MENTAL | AV. B. P. | NO. OBS. |
|----------------------|-------|--------|-----------|----------|
| Nov. 11-Dec. 3. .... | —     | —      | 109.63    | 46       |
| Dec. 4-26 .....      | +     | —      | 101.74    | 46       |

Case XI. No. 1003. Woman aged fifty. A case of well-marked neurasthenic depression. Admitted to the hospital Dec. 29, 1902, her mental symptoms dating back several months. Heart negative. No arteriosclerosis. Urine negative. Patient left hospital March 2, 1903, against advice, slightly improved.

| DATE                | MOTOR | MENTAL | AV. B. P. | NO. OBS. |
|---------------------|-------|--------|-----------|----------|
| Jan. 6-28 ...       | —     | —      | 111.3     | 46       |
| Jan. 29-Feb. 21 ... | —     | —      | 106.74    | 43       |

Case XII. No. 1009. Woman aged twenty-seven. Mental symptoms about a year before admission, which was Jan. 15, 1903. Is well-marked case of dementia præcox with incomplete dementia. Heart sounds slightly dulled. No arteriosclerosis. Urine negative.

| DATE                  | MOTOR | MENTAL | AV. B. P. | NO. OBS. |
|-----------------------|-------|--------|-----------|----------|
| Jan. 28-Feb. 20 ..... | +     | +      | 126.13    | 44       |
| Feb. 21-27 .....      | +     | +      | 122.3     | 13       |
| March 28-April 2 .... | +     | +      | 122       | 10       |

Case XIII. No. 1008. Woman aged twenty-six, admitted Jan. 15, 1903. The patient has marked flexibilitas cerea and other physical symptoms of the katatonic form of dementia præcox; mentally, however, while she has shown improvement, insane ideas are pretty well marked on careful investigation, and the case is undoubtedly one of precocious dementia. Heart negative. No arteriosclerosis. Urine negative.

| DATE                   | MOTOR | MENTAL | AV. B. P. | NO. OBS. |
|------------------------|-------|--------|-----------|----------|
| Jan. 28-Feb. 19 .....  | —     | —      | 108.2     | 41       |
| Feb. 20-March 14. .... | —     | —      | 108.3     | 42       |
| March 15-17 ....       | —     | —      | 108.3     | 24       |

In connection with this case it is interesting to note that Anton<sup>10</sup> in a study of three cases of brain disease with katatonia, found low blood pressure in two of them.

Case XIV. No. 1018. Woman aged twenty-three, admitted Feb. 25, 1903. Mental symptoms dated back about seven months, but did not become suffi-



ciently marked to demand hospital care until about a month and a half before admission. There has been rapid retrogression, and the case is evidently one of dementia præcox. Heart negative. No arteriosclerosis. Urine negative.

| DATE                  | MOTOR | MENTAL | AV. B. P. | NO. OBS. |
|-----------------------|-------|--------|-----------|----------|
| Feb. 26-March 20..... | +     | —      | 122       | 43       |
| March 21-27.....      | —     | —      | 124.6     | 13       |

The following abstracts are from cases in which the blood pressure observations were not carried over so long a period, and have been taken usually in cases which were not so recent or were not undergoing any marked changes or, in other words, were more or less stationary.

Case XV. No. 654. Woman aged thirty-four, has been under care since Dec. 30, 1899. Is a well-marked case of dementia præcox, with considerable motor activity. Is usually elated mentally. Heart negative. No arteriosclerosis. Urine negative. Blood pressure observed March 24-30, 1903, averaged 122.7 mm., the mental, motor and pulse curves all being plus.

Case XVI. No. 905. Woman aged twenty-two, admitted March 18, 1902. Case is one of well-marked dementia præcox, with sudden impulses. Heart shows mitral stenosis, which improved while she was under care. No arteriosclerosis. The day of admission patient's blood pressure was 140 mm., and six days later was 146 mm., the patient lying quietly in bed on both occasions. Her mental condition was depression. Blood pressure observed March 1-15, 1903, averaged 124.4 mm., motor and mental curves both being plus.

Case XVII. No. 78. Woman aged fifty-six, has been in the hospital for ten years. Original diagnosis chronic mania, but now in a condition of incomplete dementia. Heart negative. Arteries somewhat sclerotic. Urine shows trace of albumen and a few epithelial casts. Blood pressure taken March 8-14, 1903, averaged 139 mm., motor and pulse curves plus, mental minus.

Case XVIII. No. 380. Woman aged forty-seven. Case of imbecility with marked auditory hallucinations causing considerable excitement. Has been in hospital six years. Heart shows systolic murmur transmitted to the axilla. No arteriosclerosis. Urine shows trace of albumen. Blood pressure taken March 8-14, 1903, averaged 142 mm., motor, mental and pulse curves all being plus.

Case XIX. No. 1010. Woman aged forty-six, admitted Jan. 15, 1903. Her attack began suddenly May 16, 1902, following death of her child, the patient being much run down from nursing. The first symptoms were excitement, followed by depression, which was in turn followed by a confused, agitated condition, during which she was brought to us. She at present (April 11) has improved slightly both physically and mentally. Heart negative, no arteriosclerosis. Urine negative. Blood pressure observed March 8-14, 1903, averaged 121.5 mm., motor and pulse curves being plus, the mental minus.

Case XX. No. 947. Woman aged fifty. Admitted June 20, 1902, depression having become marked about two months before admission. Somato-psychic delusions early became prominent, and at present are the most marked symptoms. Heart shows no murmurs. Arteries are diffusely sclerotic. Urine shows a trace of albumen. At one time pulse was high tension and a course of nitrates and nitrites caused a marked change without, however, any accompanying mental change. Blood pressure was taken for the first week of March, 1903, and averaged 140 mm., motor and mental curves both being plus.

Case XXI. No. 959. Woman aged twenty-one, admitted Aug. 3, 1902. The silliness of dementia præcox is most marked. At admission was in a condition of excitement, which has since subsided. Heart shows slight systolic murmur transmitted to axilla. No arteriosclerosis. Urine negative. Blood pressure observed from March 26 to April 2, averages 124.3, motor curve being plus, mental minus.

Case XXII. No. 908. Woman aged sixty-nine, admitted to the hospital Sept. 2, 1899. Is an involution case with slight dementia. Heart and kidneys negative. No arteriosclerosis. Blood pressure observed from March 1-17, averages 127.69, motor curve is plus, mental minus.

Case XXIII. No. 908. Woman aged forty-four; a case of epileptic insanity. Dementia is very slight. Heart shows systolic murmur transmitted to the axilla. Urine negative. No arteriosclerosis. Blood pressure observed March 1-7, averages 132.2, motor curve plus, mental minus.

Case XXIV. No. 936. Woman aged fifty-six. Case of melancholia "agitata." Heart negative. Urine shows trace of albumen. No arteriosclerosis. Blood pressure observed March 24-30, averaged 131.6, motor curve plus, mental minus, pulse plus.

Case XXV. No. 1031. Woman aged forty. Recurrent melancholia. Had previous attacks six and four years ago. On admission was depressed with marked motor activity. Under treatment has improved. Heart negative. Urine shows trace of albumen. Slight arteriosclerosis. Blood pressure has gradually fallen from 140 to 120, averaging 127.6 for the three weeks observed. The motor curve has gradually fallen and the mental curve has gradually increased.

While on following down the blood pressure column I am unable to find the point where there was any change sufficiently marked to be noticed, which corresponds with any mental change and on going over the charts I am also unable to find any constant ratio, either direct or indirect, between the motor, mental and blood pressure curves, nevertheless, I feel that these observations have their value, and in the data given above we find the general ratio is usually the same as that found by other writers; namely, that the average blood pressure is low in motor restlessness, or in mental excitement, and high in depressive conditions, or in cases where there is diminished mental activ-

ity. The blood pressure depends on so many factors that it is not surprising if we find occasional cases in which it does not accord with the usual observations. Some other factor which we may have overlooked may have caused the changed ratio, or our own observations may be at fault. For example, in certain cases with mutism I have had great difficulty in deciding whether there was increased mental activity or not.

A dry and moist skin seems to have no effect, and I think that the cases observed by Kornfeld<sup>11</sup> must have been actively perspiring to have had any marked influence upon the blood pressure.

Schæffer and a number of others have observed that blood pressure was lower in the evening than in the morning, and have considered this a physiological variation. One writer gives this daily physiological fall as the reason that patients suffering from depression usually feel better at night, and the maniacal patients are usually worse. In our own observations the daily variation has been very inconstant. The morning and evening observations have frequently been the same, and the evening pressure has been higher than the morning quite as often as the reverse.

Briefly the conclusions based upon the present study may be stated as follows:

(1) The findings of other writers that (*a*) the blood pressure is increased in depressive states and decreased in excited states; and (*b*) that the motor condition has a greater influence on the blood pressure than does the mental condition, have been confirmed.

(2) A moist skin has no especial influence upon the blood pressure, although active perspiration may.

(3) There was no constant daily variation, as has been noted by Schæffer and others.

I feel that farther conclusions are not justified by the cases presented here and others which are in a too incomplete state to justify publication. This paper will have fulfilled its mission if others are stimulated to observe blood pressure.

Too much importance should not be ascribed to this symptom. Its accurate observation has its value, and will probably have a greater value later when we have a better knowledge of how it is influenced by various bodily conditions. The general clini-

cians are adding to this, and we should do our part by observing how it is influenced in mental affections.

## DISCUSSION.

DR. STEWART PATON: Doctor Dunton has hardly given you an idea of the great care he has exercised in recording these observations. Observations on blood pressure are only of value when the very greatest care is exercised in the recording of them. So many different factors have to be taken into account that the practical value of the observations, so far as treatment is concerned, may for the present be disregarded. There may be a high blood pressure in the brain and a low pressure in the peripheral arterial system. From the known facts, deductions may only be made in regard to the arterial supply of the periphery. We have no idea of the variations in the blood supply of the various organs.

In regard to the relation of the blood pressure to psychic anomalies, it has been observed that when a patient suffers from anxiety or nervousness, the blood pressure is raised to a certain point, but that as soon as the patient breaks out into a sweat, the blood pressure falls. It is also known that a copious movement of the bowels lowers blood pressure. The observations on blood pressure, recorded by clinical investigators in the asylums, should be carefully compared with the results obtained by the physicians in the general hospitals, so that the relative value to be assigned to each factor may be determined.

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<sup>1</sup> Brit. Med. Journ. Sept. 22, 1900, No. 2073, p. 184.

<sup>2</sup> Wien. klin. Wchnschr., No. 12, 1900, quoted by Shaw.

<sup>3</sup> The Tonometer and its Value in Determining Arterial Tension. Med. News, vol. lxxviii, p. 372.

<sup>4</sup> Deutsche med. Wchnschr., No. 15, 1900, quoted by Shaw.

<sup>5</sup> Journ. of Ment. Sci., October, 1900. Lancet, No. 4069, August, 24, 1901. Lancet, No. 4114, July 5, 1902.

<sup>6</sup> Journ. Amer. Med. Assoc., vol. xl, p. 1199, May 2, 1903.

<sup>7</sup> Univ. of Penn. Med. Bull., February, 1903.

<sup>8</sup> Bost. Med. and Surg. Journ., vol. cxlvii, p. 223.

<sup>9</sup> The Lancet, No. 4149, vol. clxiv, March 7, 1903.

<sup>10</sup> Anton G. Ueber Gehirn erkrankungen mit Katatonie. Mittheilung des Vereins der Aerzte in Steiermark, 1902.

<sup>11</sup> Kornfeld, Sigmund. Zur Pathologie der Angst, Festschrift Dr. v. Krafft Ebing, p. 411, 1902.



## NOTES ON GERMANY'S NEWEST PSYCHOPATHIC HOSPITAL AT KIEL.

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While we look to Germany for examples of psychopathic hospitals for our large cities it is well to remember that many of her great centres have only psychiatric wards in general hospitals. All clinical material is drawn from these for illustration of lectures in psychiatry, notably at Vienna, Berlin, and Munich. There are but eight psychopathic hospitals in all Germany, at Heidelberg, Strasburg, Leipsig, Halle, Freiburg, Würzburg, Giessen and Kiel, established in the order named. There are, however, others in course of erection. Although the organization of psychopathic hospitals was advocated as early as 1860 by German alienists, it remained for Griesinger to form a coherent plan for their establishment.

Scholz established isolation rooms and observation wards in connection with the Bremen general hospital in 1870 and Reigers also at about the same date organized similar provisions at Würzburg for the accommodation of 50 to 60 patients; he also suggested the establishment of many smaller state asylums. Fürstner opened the first psychopathic clinic at Heidelberg in 1878 which is built on the block style and is all under one roof; the workings of this clinic in modern psychiatry under Kræpelin is perhaps the one most familiar of all to us.

A few months after the opening of the Heidelberg clinic Flechsig dedicated the clinic at Leipsig by a notable historical address in which he paid just tribute to the philosophic and practical ideas of Griesinger.

ROYAL PSYCHIATRIC AND NEUROLOGICAL CLINIC AT THE UNIVERSITY  
OF KIEL. CAPACITY, 139 BEDS.

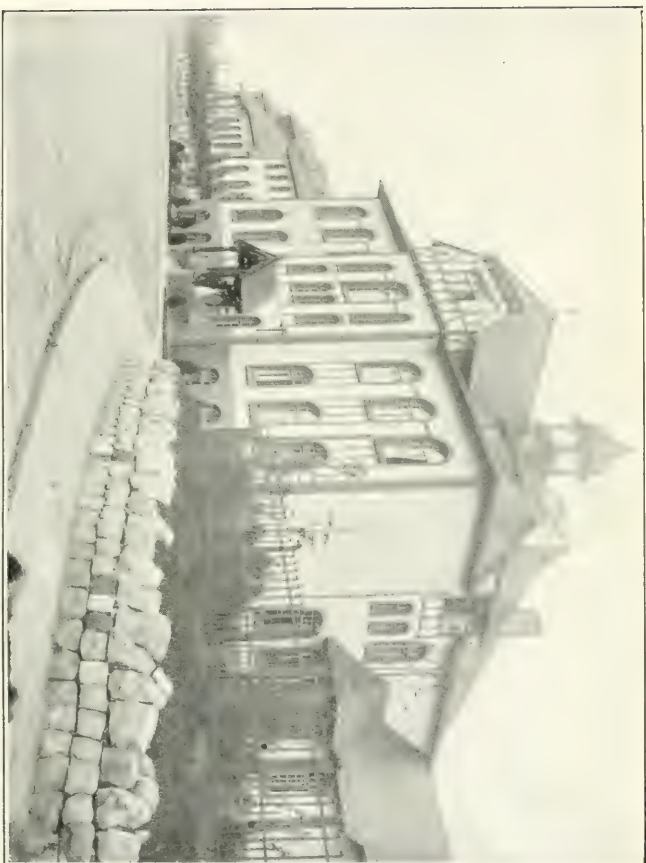
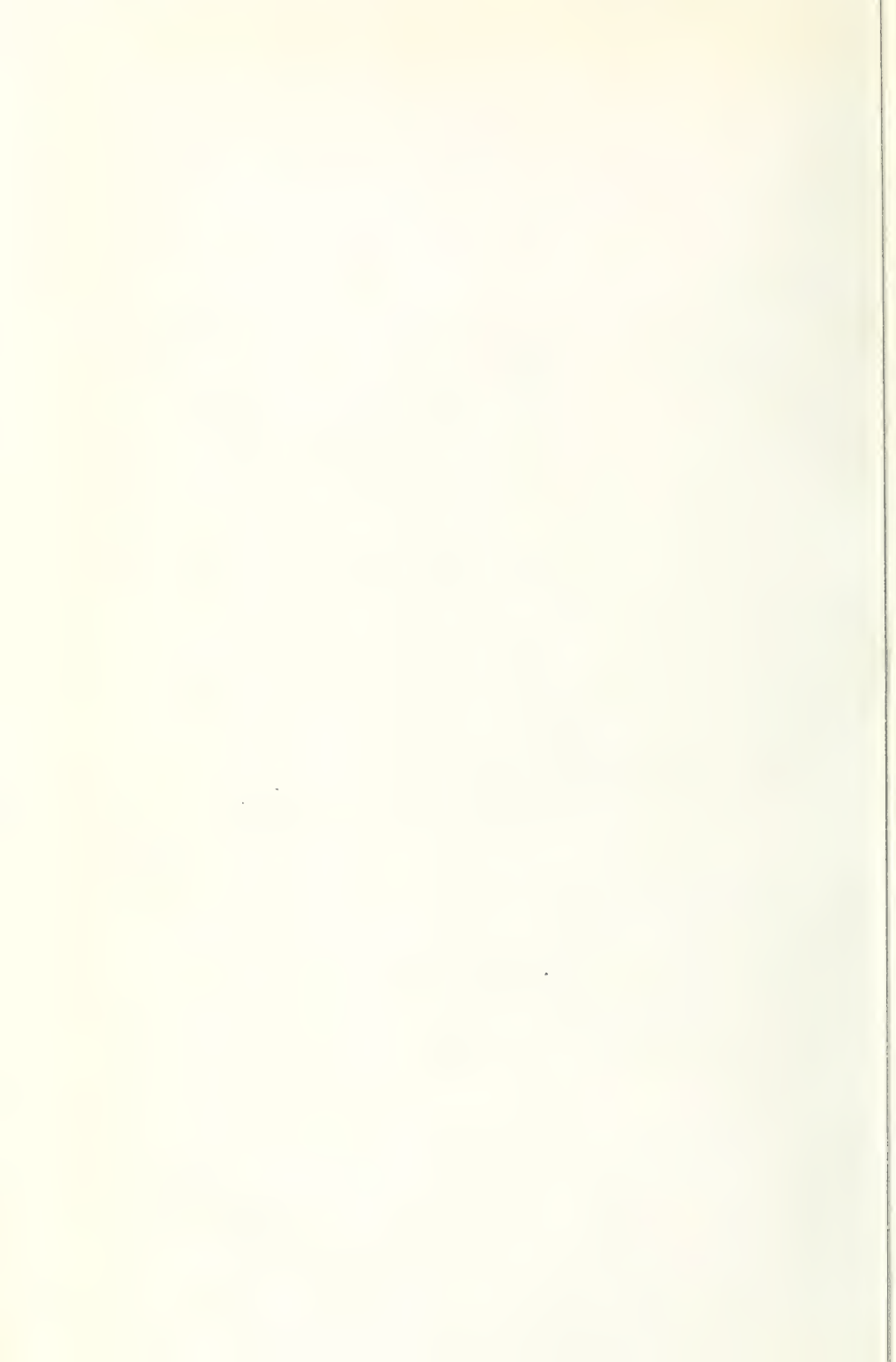


FIG. 1.—Main or administration building with adjacent reception wards attached on either side for men and women respectively. Basement rooms for family of care taker and microphotography; first floor rooms for polyclinic, administration offices, reception room, chemical laboratory, lecture hall and quarters for first assistant physician; second floor for histo-pathologic and psychological laboratories, director's room, library and quarters for medical staff.



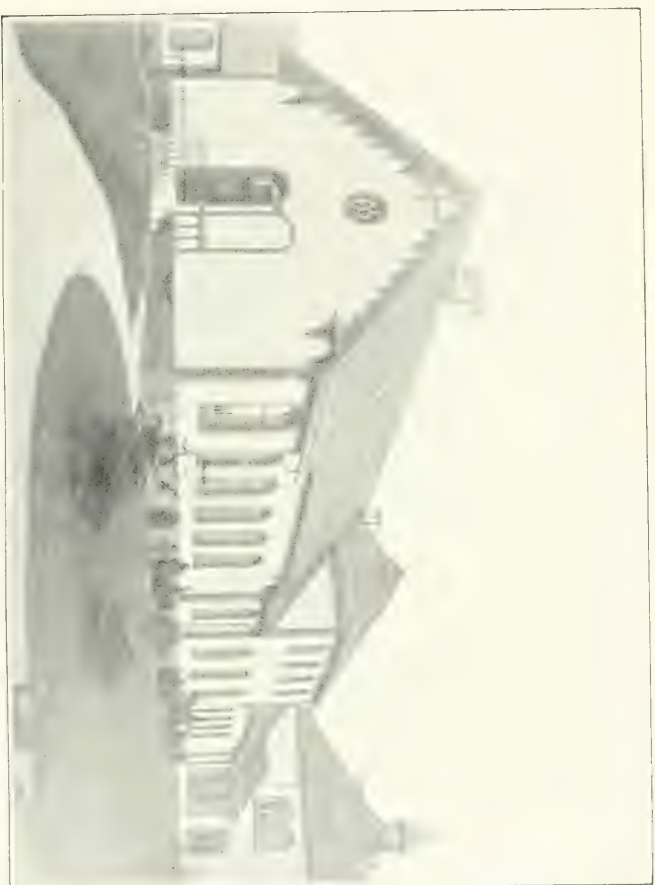


FIG. 2.—Reception wards, holding 25 patients each, adjacent to main or administration building; patients mostly in open ward with one, two or three single rooms; second floor in centre part only for nurses.



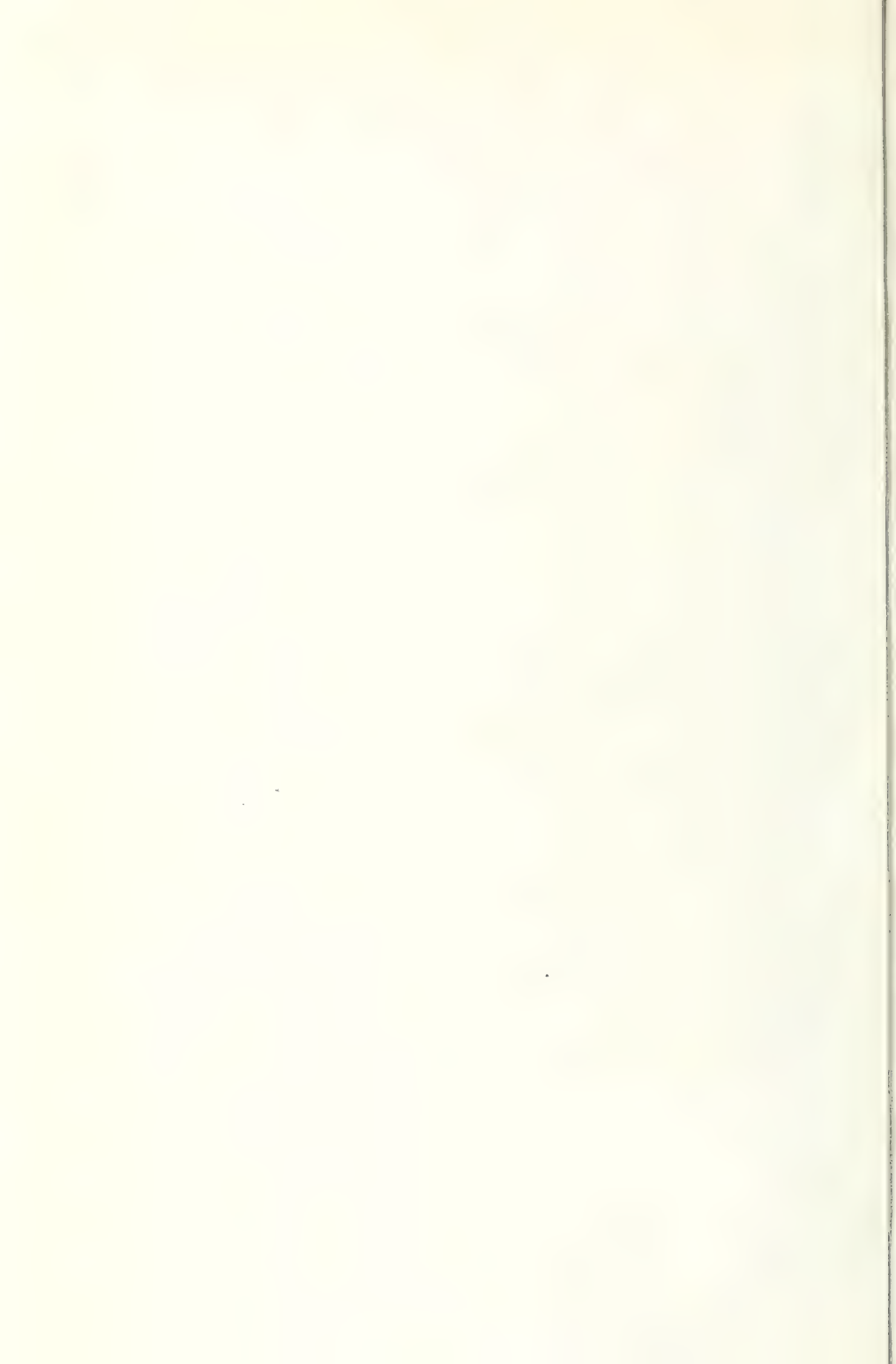
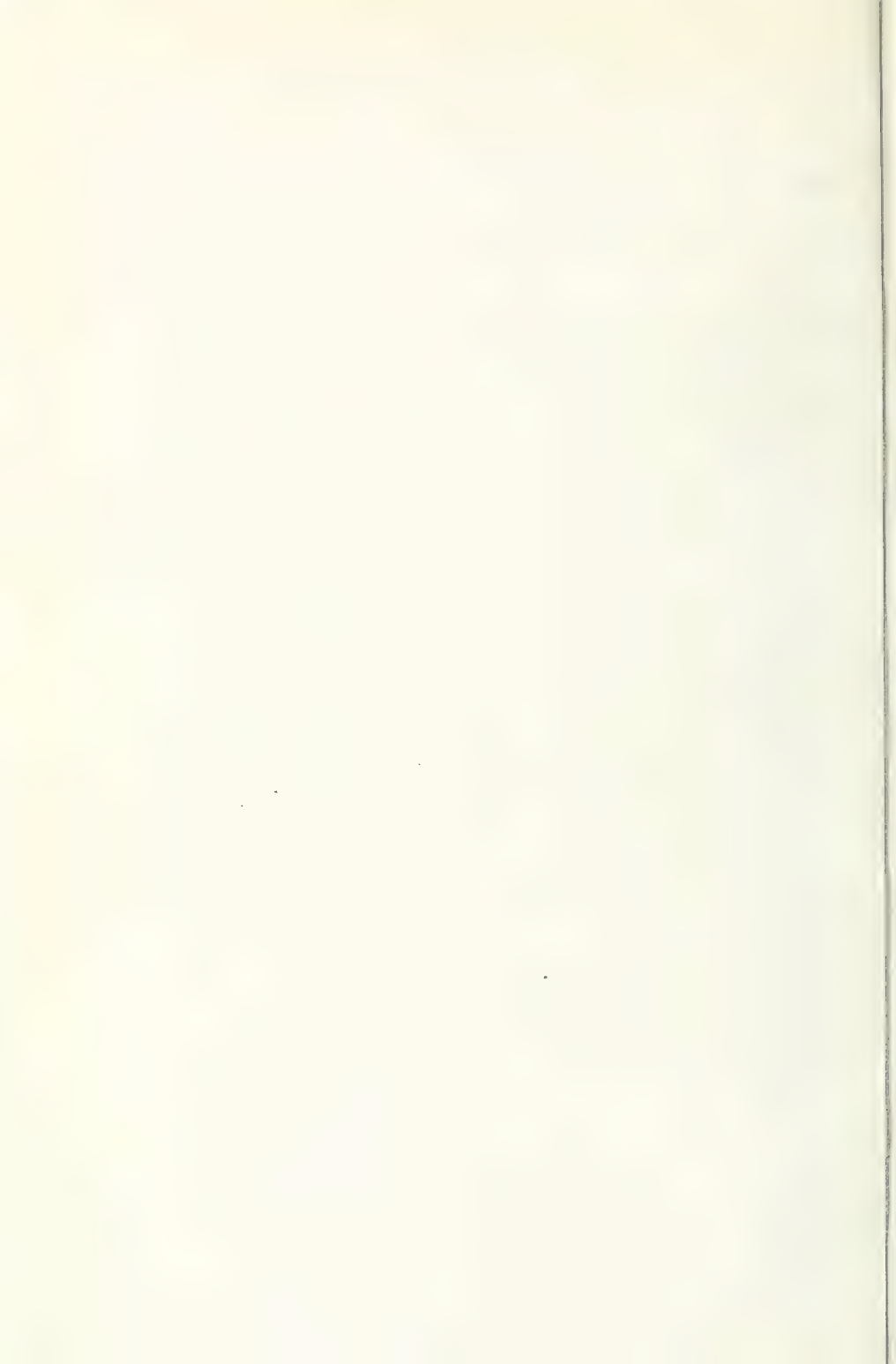




FIG. 3.—Villas for quiet and convalescent of each sex, holding 25 patients each; first floor, day room, single room and two small wards for 3 and 4 each; second floor, single rooms for pay patients.



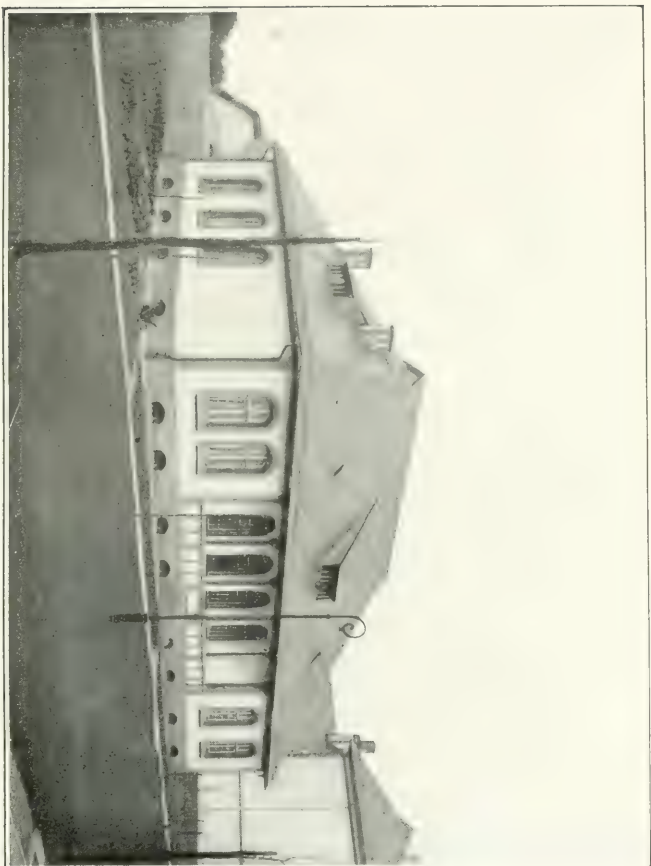
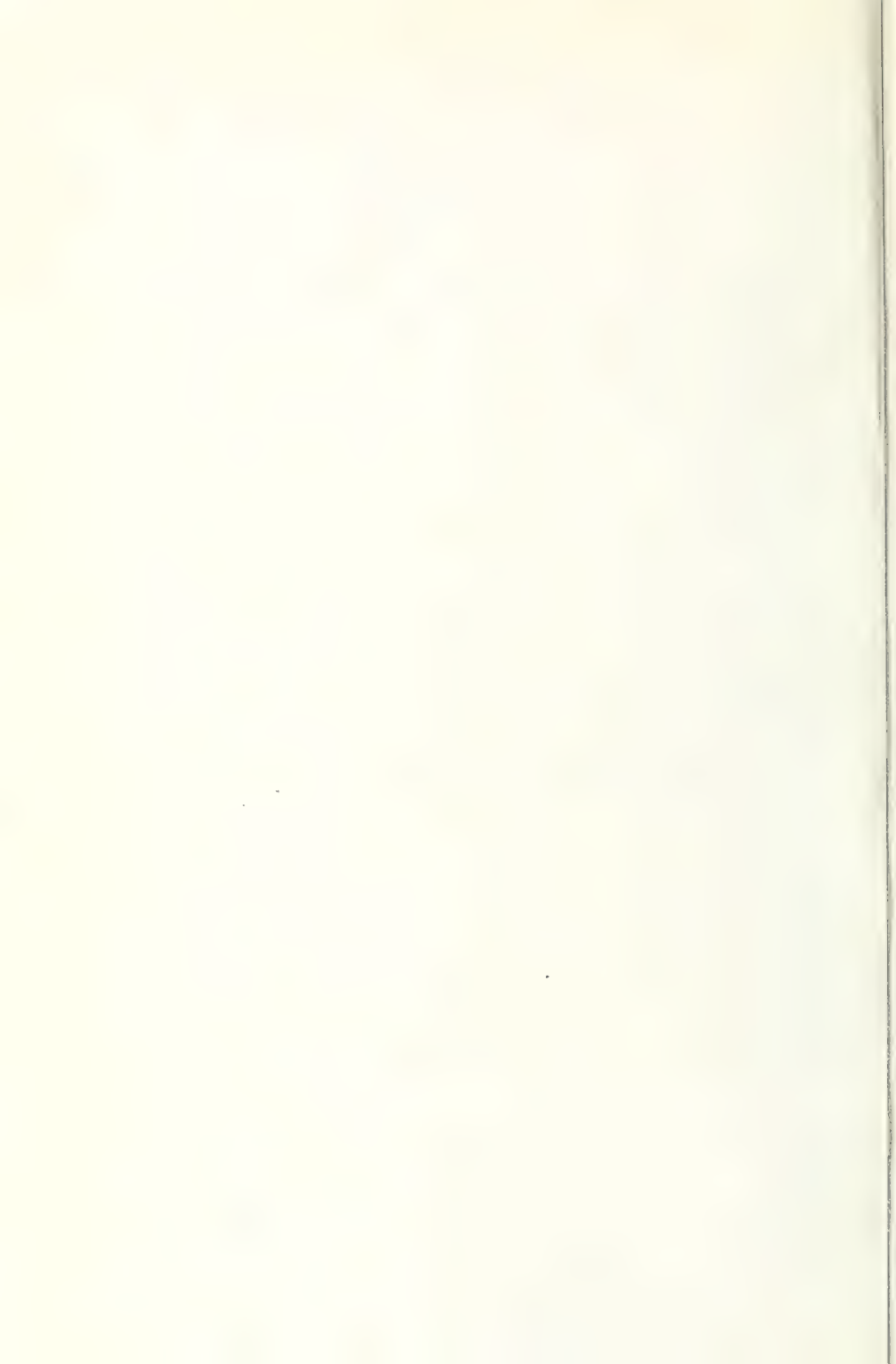


FIG. 4.—One story villas for 20 disturbed and violent cases; day room, 2 large wards and five single rooms.





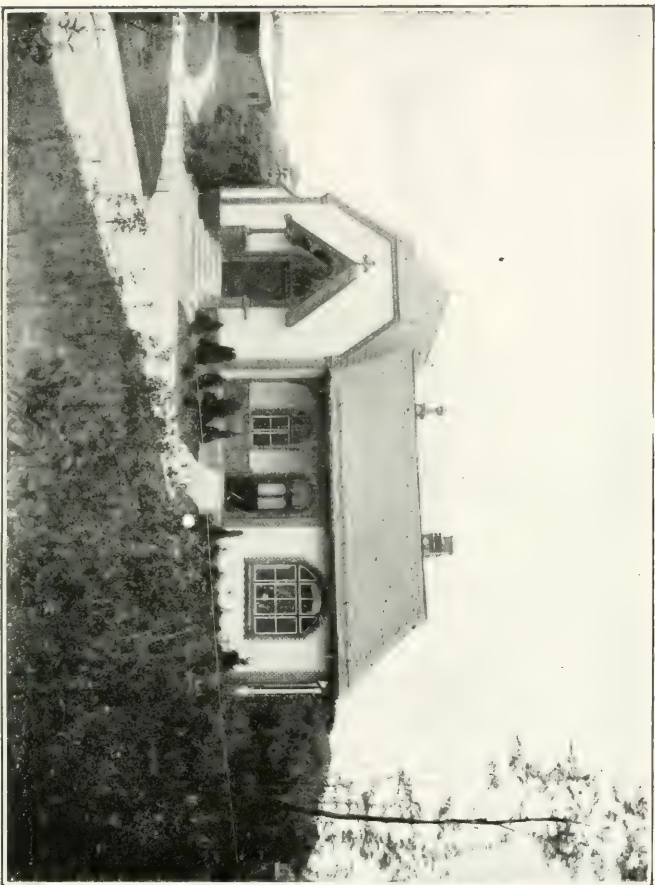


FIG. 5.—Chapel and mortuary containing autopsy room.

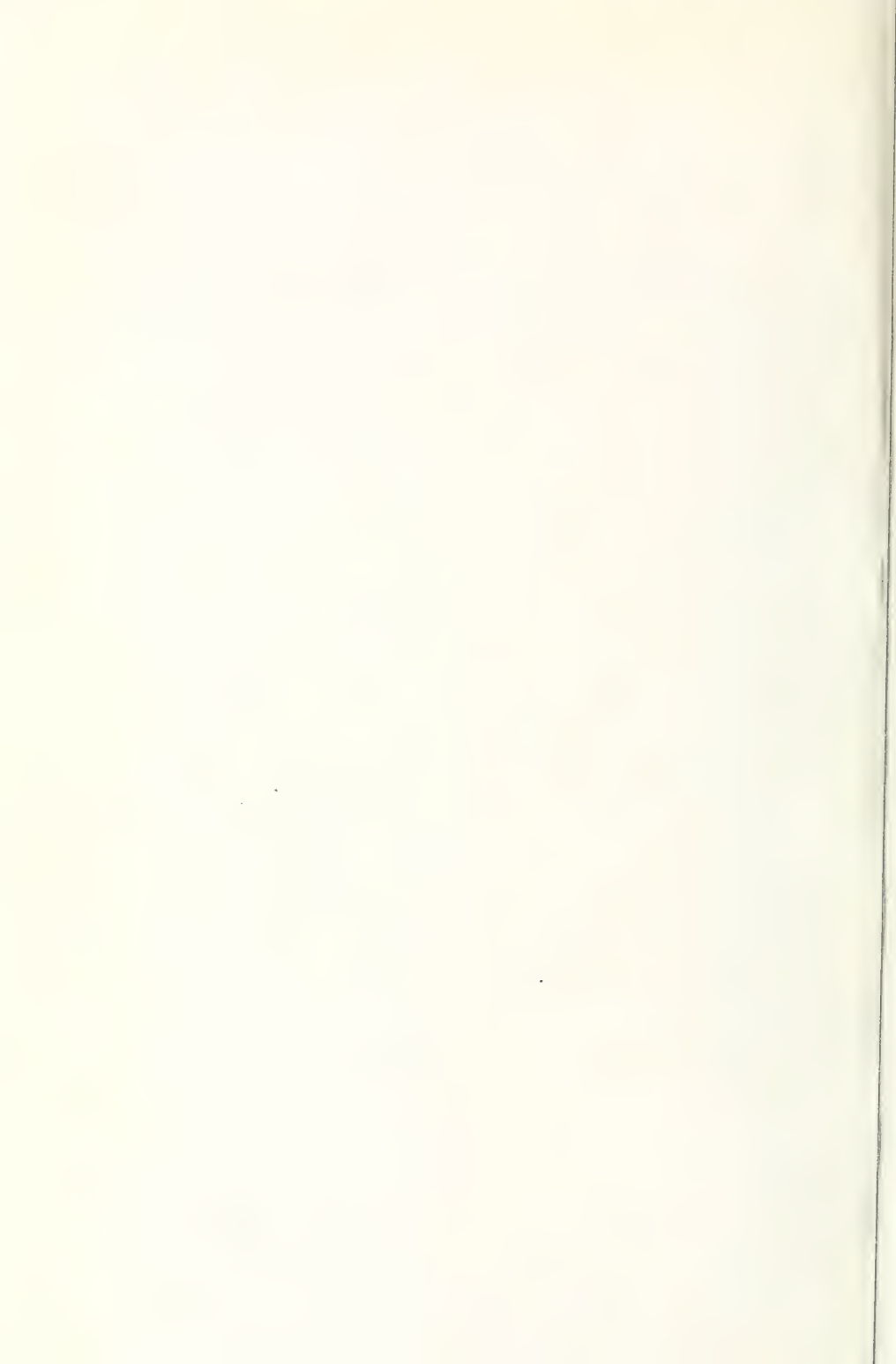
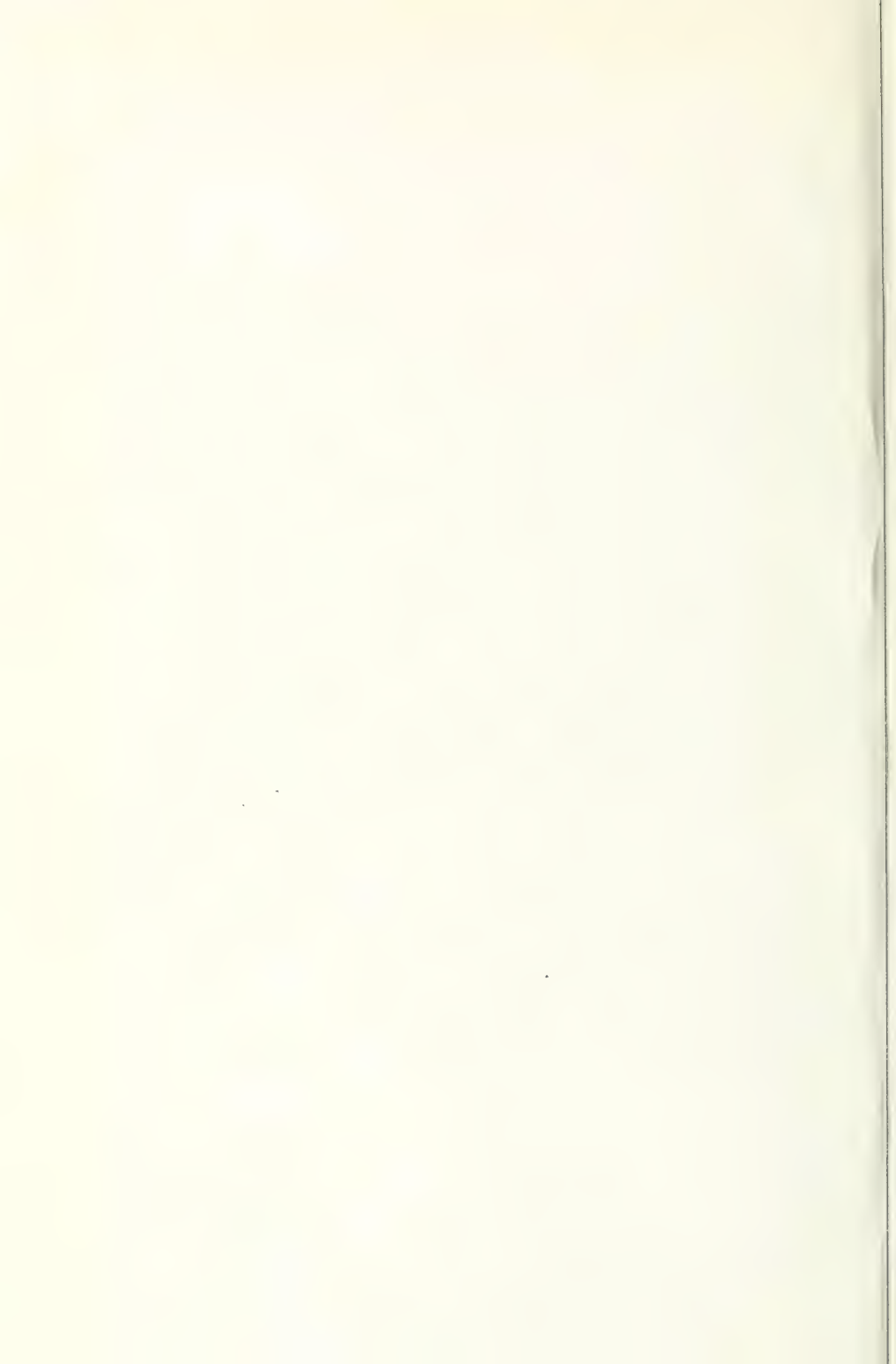




FIG. 6.—Employees' cottage.





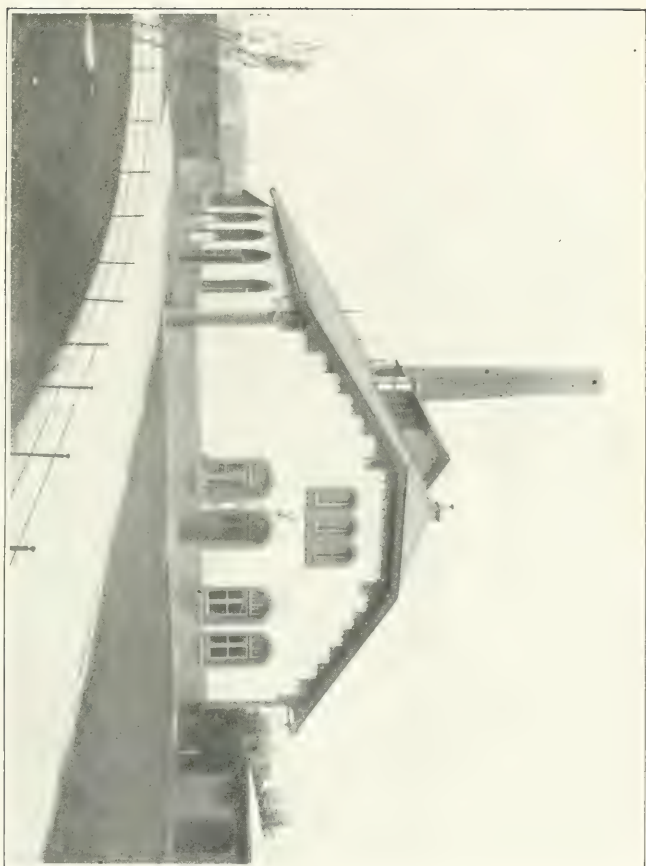
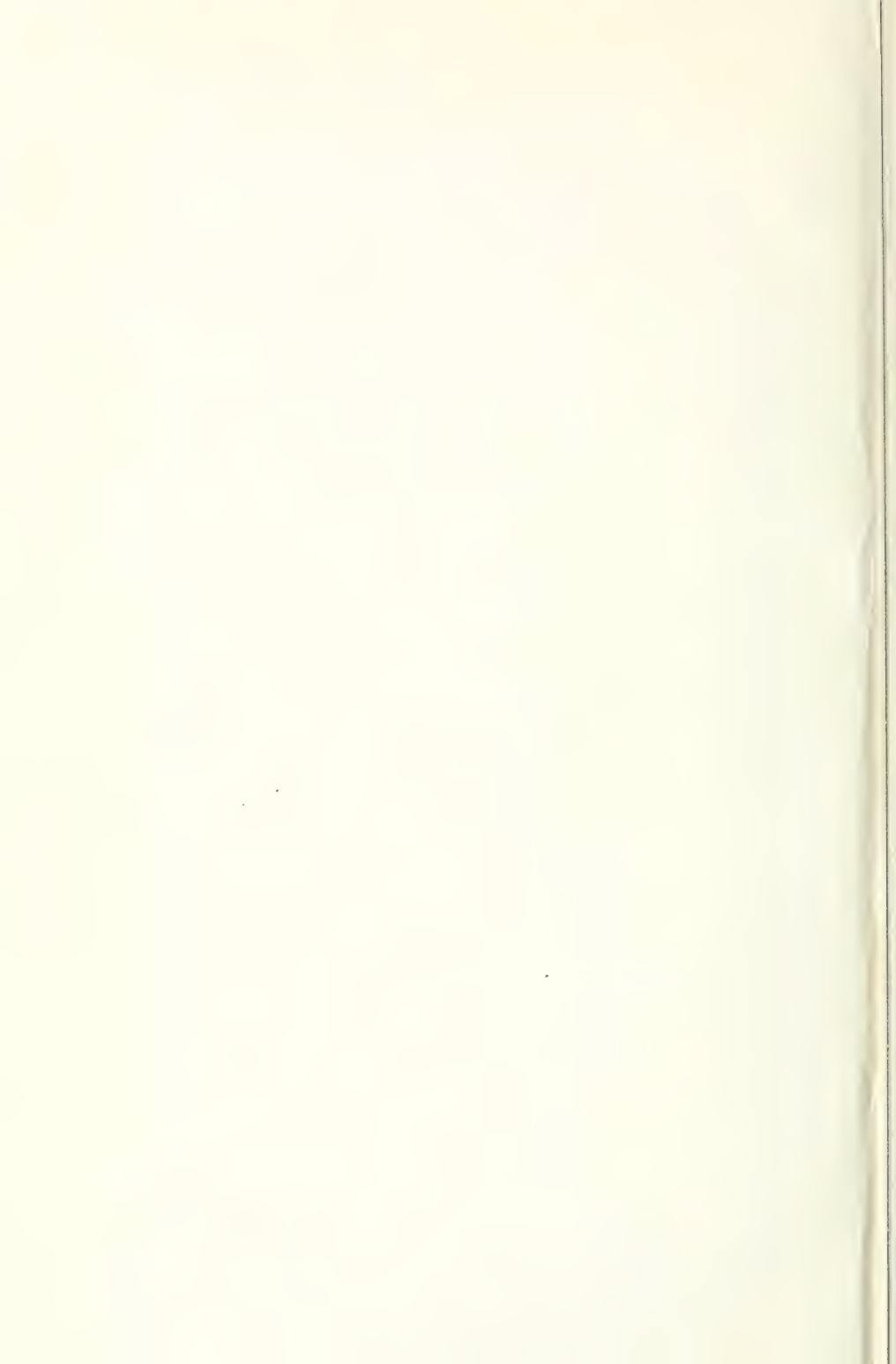


FIG. 2.—Laundry, boiler house, etc.



The pavilion principle of the psychopathic hospital at Halle, established by Heitzig in 1891, was an object of special praise by Wernicke and Sioli, the latter in a public address emphasized the great advantages of caring for the insane in these specially constructed pavilions under direction of trained resident alienists.

It remained for Sommers of Giessen to most completely fulfill the splendid ideas of Greisinger in establishing a psychopathic hospital on a pavilion plan, independent of a general hospital, in which should be received all forms of brain disease accompanied by mental alienation, as well as the psychoses of epilepsy, alcoholism, grand hysteria and the like; still more recently Semmerling, at Kiel, has added new details in construction and arrangement in founding the newest and best equipped psychopathic hospitals of Europe.

The underlying causes for creating special mental clinics in Germany appear to have been the same as with us; namely, the necessity of early care of the acute insane; the great distance of the large state asylums from the populous centres; the formality necessary for admission to the latter institutions. Moreover there was great necessity for public provision for the neurotic, hysterical, epileptic, alcoholic and borderland cases of insanity not certifiable, and yet in urgent need of prophylactic treatment. It has been proven that by proper observation, diagnosis and careful adjustment of broad principles of treatment (moral, dietetic and hygienic) to this large class of psychoses and neuroses, that there has been a considerable diminution in the demand for so many private sanatoriums which are only too often impossible for the poor. In the psychopathic hospital at Giessen the per cent of neuroses and psychoses not insane which were under treatment in 1896 was 6.5% of total admissions; it has increased to 23% in five years.

As regards location there are three kinds of provision for the acute insane in Germany: (1) Special wards for the insane (in general hospitals); (2) Separate rooms or pavilion wards adjacent to general hospitals. (3) Independent psychopathic hospitals. The first is formed in large cities and especially in centres for medical teaching, while the latter is best represented in the psychopathic hospitals at Halle, Giessen and Kiel. The provisions at Tübingen, Leipsig and Strasburg are of the older



type of city asylums built on the block system under one roof, the observation wards of which are not sufficiently outlined to class these institutions in the strictly modern type of psychopathic hospitals. Halle, Giessen and Kiel are the only psychopathic hospitals in Germany built strictly on the pavilion principle. In elucidation of the second class reception pavilions, they may be divided into four types: (1) Those which have resident alienists and observation wards, of which the reception pavilion at Altoona, Dresden, Cologne, Stuttgart, Breslau, Königsburg, Frankfurt-on-Main may be cited. (2) Those without resident alienists but with observation wards, such as the provisions at Hamburg, Magdeburg and Nuremburg. (3) With resident physicians but without observation wards as at Dortmund, Grolitz, Hanover, and Munich. (4) Those without either equipment seen at Augsburg, Bremen, Brunswick, Chemnitz, Darmstadt, Erfurt, Elberfeld, Frankfurt-on-the-Oder, Maintz, Mannheim, Posen, Stettin, Muhlhausen and Wiesbaden.

It is not difficult for one to decide upon the order of desirability or practicability of these different provisions. We are in the same formative stage of approximating our ideals, although very tardy in the field. If we may not have psychopathic hospitals in or near the large centres of population, we may have observation wards either in or in connection with general hospitals, as at Albany, or where large state hospitals are near enough, psychopathic wards may be formed as adjuncts to such hospitals as is the plan in New York state. We must, however, bear in mind that for obvious reasons many desirable advantages for receiving acute and borderland cases of insanity and many psychoses, not certifiable, must be sacrificed if psychopathic wards are attached to the state hospitals instead of general hospitals in the cities which the state hospitals approximate.

We may now come a little closer to the principal object of this paper. In 1897 the city of Kiel purchased land for a psychopathic hospital on a beautiful and commanding site overlooking the Kieler bay with an elevation of about 100 feet above sea level. Plans were made in the following year and construction was begun in 1899. The hospital was formally opened for the reception of patients on November 1, 1901. Photographs here presented were kindly furnished me by Professor Semmer-

ling, director of the clinic, and who is also professor of psychiatry in the University at Kiel.

It will be seen that the character of the hospital construction is on the pavilion or villa plan. The houses are of the country type made of pressed brick, plastered outside and trimmed with red brick. They are gabled artistically after the old German style. The capacity of the hospital is 139 beds, 23 of the 1st and 2nd class and 116 of the 3rd class, the latter being similar to our indigent class; the entire cost of the plant was \$310,725 or about \$2,275 a bed. An average cost over all of \$3.98. The daily per capita cost in maintenance is about 55 cents for the 3rd class and 70 to 95 cents for the 1st class. The hospital is heated by steam from a central boiler plant; the grounds and buildings are lighted by electricity, while gas is used for fuel. The water supply and sewage disposal are in connection with that of the city proper. The hospital is on the border of New Kiel and one mile from the old part of the town, the university, and the railway station. It is connected by short and long distance telephone, and has a local system connecting all parts of the hospital. Ventilation is maintained by a system of forced draft by means of which all parts of the hospital are kept at a uniform temperature and moisture. The central portion of the main building is given over to administration offices, laboratories, examination rooms, polyclinic lecture rooms, library and living-rooms for the medical officers of the staff. The barracks or the pavilion attached to either side of the administration building serve for reception and observation wards, the villas for the quiet and convalescent of 1st, 2nd and 3rd class, the ground floor being for the 1st and 2nd class. Special rooms in this latter house serve for certain types of convalescents, while isolation houses are of course for the noisy and excited cases. It is generally held by those in charge of psychopathic hospitals that all acutely disturbed cases belong in observation wards or rooms, and those patients who need to go about a great deal and who require more freedom than the limited grounds of the hospital, should either be discharged as sufficiently convalescent to return to their homes, or if still insane they should be sent to state asylums. With us such cases not sufficiently convalescent for discharge might be transferred to a colony, which might serve alike for acute, convalescent and

chronic cases. All observation wards should be most convenient for investigation and should be easily supervised. The acute insane need open observation wards, not cell care.

The location of these hospitals has already been touched upon. All are agreed that the pavilion or villa principle when possible of establishment is the best order or style of construction. When not possible of independent existence then they should be formed in connection with general hospitals and not asylums. That they should not be built in connection with workhouses, almshouses or infirmaries does not need comment. Other things being equal, a psychopathic hospital should be no more difficult to reach than a general hospital. It ought not to be larger than 150 beds; if cities are so large as to require more accommodation, two or more might be established for the largest cities, as is being agitated in London at present. If this is not done the large demand for admission upon small clinics would simply make them reception pavilions for diagnosis and certification only. Patients should have the privilege of the hospital at least six weeks if necessary; the average longest time should not be more than four months. In a measure the length of stay may be regulated by the admissions. In Germany where observation wards exist and there are plenty of reception rooms and a resident physician, such as at Dresden, Königsburg and Breslau, the ratio of cases received is about 1 to 500 of the total population, while limitations in these requirements, such as at Munich, Bremen, and Dortmund the ratio is about 1 to 1,000.

The manner of admission of insane cases detained against their will is somewhat similar to that which obtains in our large cities; they are remanded to insane pavilions by a city magistrate pending examination into their sanity. A formal insanity certificate is only executed in transferring cases from the psychopathic hospital to the large state asylums.

There seems to be a general impression in Germany, which is particularly emphasized in all the newest and best psychopathic hospitals, that the scientific equipment for such clinics, aside from facilities for teaching psychiatry, shall be only those which immediately subserve the purpose of diagnosis and treatment of diseases of the mind and nervous system. All researches not of an immediately practical character should be excluded. Krapelin, Sommers and Semmerling, expressed themselves de-

cidedly against research study into the chemical pathology of the insanities, as such investigations are too indefinite to yield any valuable results in solving the pathogenesis and pathology of mental disorders. Sommers and Krapelin, however, lay deserved stress upon the continued painstaking study of the insane by physio-psychological methods. Both are pupils of Wundt and most painstaking in urging the refinements of clinical diagnosis such as physio-psychological study. I hope, however, that we may be able to employ all clinical and chemical methods in American psychopathic hospitals.

From the foregoing we may conclude that all American cities which have a population of 20,000 should have psychiatric wards attached to general hospitals. In cities of 50,000 there should be pavilions adjacent to general hospitals with independent observation and examination equipment; they should also have permanent resident nurses and one or more resident physicians. Cities of 100,000 should have their own independent psychopathic hospitals on similar plans to those at Halle, Giesen and Kiel.

#### DISCUSSION.

DR. COWLES: I would like to ask Doctor Clark what proportion of patients at Kiel, for example, are certified or sent subject to certification?

DR. CLARK: I think at Kiel, which has been very recently opened, about seventy per cent of those admitted are certified, but ultimately, Dr. Semmerling thought it would not be above fifty per cent.

DR. COWLES: That would be the average, you think.

DR. CLARK: Yes, they had been opened only a few months when I was there, and their statistics were only in general terms.

On motion of Dr. Burr, Dr. Clark was given a vote of thanks for his interesting paper.



## AN EPIDEMIC OF TYPHOID FEVER DUE TO IMPURE ICE.

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The St. Lawrence State Hospital is situated on the St. Lawrence river three miles below the city of Ogdensburg. At this point the river is a mile and a quarter wide, has an average depth of from twelve to twenty feet, and the current is three miles per hour. This was the source of the water for the hospital from its organization in December, 1890, until December, 1900, the intake pipe extending two hundred feet from the shore into swift water, and to a depth of 16 feet, on a rocky bottom. The water supply was considered ideal by the founders of the institution, who pointed to the great volume of the river, the comparatively rapid current and the rocky formation of the river bed, and argued that the danger of contamination from the Ogdensburg sewers was reduced to an infinitesimal quantity. Yet within two months from the occupation of the first building typhoid fever made its appearance and was practically endemic for ten years, increasing steadily with the growth of the population, from two cases the first year to forty in 1900. In September, 1895, at the request of the superintendent, the State Board of Health made an investigation of the prevalence of typhoid fever in the hospital, and the report by Dr. F. C. Curtis embodied the following conclusion: "I would report that it is my opinion that this water supply (the St. Lawrence river) is the source of the endemic: First. Because the other common sources for the development and spread of typhoid fever may all be excluded. Second. Because the characteristics of the endemic are those of such a constantly acting cause. Third. Because in the vast majority of cases the epi-

demic or endemic prevalence of typhoid fever is due to a contaminated water supply. In the present case we have a navigated and sewage-bearing stream used as the source of supply." Previous to this investigation the water had been tested chemically and bacteriologically with negative results. All observers agreed in the correctness of this conclusion and it is not likely that ice at that time contributed in any appreciable degree as a causative factor. There are several reasons for this belief, one of which will suffice here, namely, that in the earlier years each ward had its own drinking fountain, where the water was cooled in an ice chamber in the basement, and ice was not put into water or milk. Boiled water was then provided for drinking and every effort made to prevent employees and patients using water from the faucets for that purpose. By this means the disease was kept in check to some extent, but employees would become careless after a time when there was no sickness to remind them of it and many of the patients, from delusions of poisoning or for other reasons, refused the boiled water and drank from the faucets in the lavatories.

Various measures for purification were investigated and it was finally decided to abandon the St. Lawrence river and obtain water from the Oswegatchie river, a small Adirondack stream, from which the city of Ogdensburg is supplied, by extending our mains to connect with those of the city. This was done in December, 1900, and with the exception of two cases which occurred about the time the change was made and probably contracted previously, there were no cases of typhoid that were not clearly contracted elsewhere until October, 1902. During this period of twenty-one months, water was not boiled and ice was freely used as an article of food by both patients and employees.

On October 2, 1902, three attendants in the same building were reported ill with fever, headache and malaise; on October 3, two others showed similar symptoms; on October 4, another case occurred; on the following day two others, making eight within four days. The symptoms presented by these early cases were principally of a nervous type; intense aching in the back and limbs, insomnia, headache and dry cough. The temperature of several of the patients reached 103 to 104° on the first day.

The disease was considered epidemic influenza until towards the end of the first week, when the rash and other symptoms of typhoid made the diagnosis no longer doubtful. Of the eight persons first attacked seven were employees who ate in the same dining room, and the other was a woman patient who had been working there. The local conditions about this dining-room and kitchen were thoroughly inspected with negative result; the milk is obtained from our own herd and could not have been infected. All the containers were sterilized twice daily; no water was used except from the faucets and there had been no fever among the men working in the barns. The possibility of infection from vegetables and oysters was eliminated after investigation. Enquiry of the health department of the city showed that typhoid fever was not prevalent there among users of the Oswegatchie water. There remained only the ice to be considered; one point of interest in this connection is that about six days before the first cases developed a new ice house had been opened from which none had been previously withdrawn that year. The ice had been taken from the St. Lawrence river and had been stored since February, a period of more than seven months, and though gathered from the same spot as that in house No. 1, it was at a different time. Dr. John W. Benton, health officer of the city of Ogdensburg, informs us that during the months of January and February, 1902, when this ice was forming, there were three or four cases of typhoid fever in the city among users of well-water. None of them were verified by autopsy, but he thought there could be no question as to the nature of the disease. The temperature prevailing during the week the ice was being stored was, according to the records of the weather bureau observer at this point—maximum, 14° F.; minimum,—1° F. The ice had been cut from the same spot during the past twelve years but one, and had never before been suspected of carrying disease.

A specimen of drinking water and one of melted ice were sent at once to the Bender Laboratory at Albany, N. Y., for bacteriological examination. The ice selected was clear and free from extraneous matter. The report of the director, Dr. George Blumer, is in part as follows: "Specimen No. 1, drinking water (Oswegatchie); number of bacteria per cubic centimeter on agar plates 11,000; on gelatin plates 3,600. The fer-

mentation test showed no gas in eight tubes each treated with one cubic centimeter of water. Specimen 2, melted ice (St. Lawrence); number of bacteria per cubic centimeter on agar plates 30,400; on gelatin plates 50,400. Out of eight fermentation tubes inoculated three showed definite evidence of organic contamination in the form of the colon bacillus." This report from so excellent an authority satisfied us that the contagium of typhoid was in all probability in the ice from ice-house No. 2, and we began an investigation in the laboratory of the St. Lawrence State Hospital to determine whether or not *B. typhosus* could be isolated from it.

We examined the stock of ice and found that some of the cakes contained foreign substance in the form of black or dark brown, granular matter, solidly frozen in the ice. These cakes were broken and the portions containing the foreign matter removed. The cakes were about sixteen inches in thickness, and the portions selected were, as near as possible, from the centre. We were careful to choose no snow ice. These fragments were melted in a clean vessel at room temperature, after which a considerable black sediment appeared in the vessel. Examined under the microscope with low power it consisted of black homogeneous masses; with the 1-16 objective the field was crowded with organisms, many of which were motile. Cultures made from the sediment and the water in bouillon showed a rapid growth with fecal odor in all the tubes. Series of plates were then prepared from these cultures by the usual method and well defined colonies were isolated in the end plates.

Five colonies were selected which presented characteristics resembling the typhoid bacillus and fresh cultures were made from them. Of these cultures three proved to be the colon bacillus, one was a bacillus not identified, while the fifth was a pure culture of the typhoid bacillus, as shown by the following tests: on nutrient agar it grows readily; in broth no pellicle is formed; in lactose media no fermentation occurs; on potato the growth is invisible, in litmus milk the reaction is faintly alkaline and no coagulation occurs; with the serum of typhoid fever patients characteristic clumping is produced; an actively motile bacillus having the appearance of *B. typhosus*. The disease was identified clinically by autopsies in three of the cases,



in all of which the intestinal and abdominal lesions were demonstrated.

In "An Investigation of the Boston Ice Supply" (Boston Medical and Surgical Journal, Vol. CXLV, p. 557), in 1901, conducted by the board of health, the work of Sedgwick, Winslow and Park is reviewed and the following statements are made: "These considerations show that ice more than three weeks old is sanitarily as safe as a well-filtered water supply. Cases of typhoid fever, due to ice, might naturally be expected to occur, if at all, at the time immediately following the cutting of infected ice, and as this is done in January usually, after March at latest, the ice could hardly be held responsible for any trouble, *even were it known to be infected.*" It should be borne in mind, however, that the work of the authorities referred to and upon which this conclusion is based was done under artificial conditions, and in its natural environment the bacillus now appears to have a greater resistance not heretofore recognized. In our review of the literature we have been unable to find any similar cases reported and in the article quoted the statement is made that only a single authentic case is on record.

With the discontinuance of the use of the infected ice the epidemic gradually subsided. There were in all thirty-nine cases, the last of which developed in November, 1902. Our water is not boiled and the conditions, with the exception of the ice, are the same as at the beginning of the epidemic.

## THE INSANE IN CANADA.

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### A STUDY FROM THE OFFICIAL CENSUS.

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de Medecine Mentale de Belgique.*

In a paper on the *Insane in Canada*<sup>1</sup> recently communicated to the *Medico-Psychological Society* of Quebec, it was shown, from the statistics furnished by the superintendents of the institutions for their care, that there had been an actual increase in the number of persons confined in the insane asylums throughout the Dominion of Canada for the thirty years from 1871 to 1901.

We are aware, however, that those statistics do not show the total number of the insane in Canada, for as is well known the official figures given as the total number of persons of unsound mind include those who are confined in asylums for treatment as well as those who are treated at their own homes.

The last census not being completed at the time of our study it was not possible for us to look into the total number of the insane in the Dominion. But as this census is finished and we possess the required information, we can now examine the official figures as regards the total number of the insane in their relation to the total general population of the country.

From the first table giving the number of insane persons per thousand of population, it will be noticed that there has been a general increase in their number throughout the Dominion during the last three decades excepting only that of 1881, where a slight decrease is apparent.

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<sup>1</sup> Union Medicale du Canada, Vol. 8, p. 210 (1902).

We will overlook the details of the fluctuation in the number of the insane for each province during each decade save to say that a glance over the table will suffice.

From the second table it will be seen that the increase in the number of the insane is an actual one, that is to say, the increase is in excess of the increase of the general population and that it is an actual increase in the percentage.

From this second table we ascertain the fact that after a decrease of two per ten thousand of population for the ten years to 1881, there is an increase in the number of the insane of five and of three per ten thousand respectively for the periods 1881 to 1891 and 1891 to 1901. That is, in short, an actual increase of six per ten thousand for the thirty years to 1901.

Finally in a third and last table we compare the number of insane persons confined in asylums for treatment with their total number throughout the country.

Here we see that the western provinces, Manitoba, the Northwest Territories, British Columbia and the Yukon, confine a larger proportion of their insane for treatment.

Considered on the whole the Dominion of Canada confined in 1871, 0.26 per cent of its insane; 0.48 per cent in 1881; 0.61 per cent in 1891; and 0.64 per cent in 1901. From this we see that the number of the insane confined for treatment has increased 0.38 per cent.

In these statistics it will be noticed that the older provinces, Ontario, Quebec, Nova Scotia, New Brunswick and Prince Edward Island, show in proportion to their population a larger number of insane than the new and more recently opened provinces.

From this study of the official censuses of the Dominion of Canada we conclude that:

During the last three decennial periods there has been an actual increase in the number of persons mentally deranged in the proportion of six per ten thousand of population.

TABLE 1.—*Showing the Total and the Proportion of the Insane, Confined and not Confined, for 1,000 of Population, Based on the Censuses of 1871, 1881, 1891 and 1901.*

|                                    | Census. | Population. | Total number of Insane. | Proportion per 1,000 of population. |
|------------------------------------|---------|-------------|-------------------------|-------------------------------------|
| Ontario.....                       | 1871    | 1,620,851   | 4,081                   | 2.52                                |
|                                    | 1881    | 1,923,228   | 4,340                   | 2.25                                |
|                                    | 1891    | 2,114,321   | 5,855                   | 2.76                                |
|                                    | 1901    | 2,182,947   | 7,511                   | 3.44                                |
| Quebec.....                        | 1871    | 1,191,516   | 3,300                   | 2.76                                |
|                                    | 1881    | 1,359,027   | 2,931                   | 2.16                                |
|                                    | 1891    | 1,488,535   | 4,550                   | 3.05                                |
|                                    | 1901    | 1,648,898   | 5,245                   | 3.18                                |
| Nova Scotia.....                   | 1871    | 387,800     | 1,254                   | 3.23                                |
|                                    | 1881    | 440,572     | 1,445                   | 3.28                                |
|                                    | 1891    | 450,396     | 1,373                   | 3.05                                |
|                                    | 1901    | 459,571     | 1,392                   | 3.03                                |
| New Brunswick.....                 | 1871    | 285,594     | 788                     | 2.76                                |
|                                    | 1881    | 321,233     | 705                     | 2.19                                |
|                                    | 1891    | 321,263     | 886                     | 2.76                                |
|                                    | 1901    | 331,120     | 1,054                   | 3.18                                |
| Manitoba and the Northwest.....    | 1871    | 12,228      |                         |                                     |
|                                    | 1881    | 118,706     | 49                      | 0.41                                |
|                                    | 1891    | 138,127     | 218                     | 1.58                                |
|                                    | 1901    | 438,925     | 637                     | 1.46                                |
| British Columbia and the Yukon.... | 1871    | 36,247      |                         |                                     |
|                                    | 1881    | 49,459      | 68                      | 1.37                                |
|                                    | 1891    | 98,173      | 130                     | 1.32                                |
|                                    | 1901    | 204,439     | 299                     | 1.67                                |
| Prince Edward Island.....          | 1871    | 94,021      |                         |                                     |
|                                    | 1881    | 108,891     | 351                     | 3.22                                |
|                                    | 1891    | 109,078     | 333                     | 3.05                                |
|                                    | 1901    | 103,259     | 357                     | 3.46                                |
| Dominion of Canada.....            | 1871    | 3,707,252   | 9,423                   | 2.54                                |
|                                    | 1881    | 4,324,810   | 9,889                   | 2.29                                |
|                                    | 1891    | 4,719,893   | 13,342                  | 2.83                                |
|                                    | 1901    | 5,369,157   | 16,495                  | 3.07                                |



TABLE 2.—*Indicating the Increase and the Decrease, Proportional and Actual, of the Insane, Confined and not Confined, Based on the Censuses of 1871, 1881, 1891 and 1901.*

|                                     | Census. | Population. | Number of Insane. | Proportion of Increase. | Actual Increase. | Actual Decrease. |
|-------------------------------------|---------|-------------|-------------------|-------------------------|------------------|------------------|
| Ontario.....                        | 1871    | 1,620,851   | 4,081             | 0.0025                  |                  |                  |
|                                     | 1881    | 1,923,228   | 4,340             | *0.0023                 |                  | 0.0002           |
|                                     | 1891    | 2,114,321   | 5,855             | 0.0028                  | 0.0005           |                  |
|                                     | 1901    | 2,182,947   | 7,511             | 0.0034                  | 0.0006           |                  |
| Quebec.....                         | 1871    | 1,191,516   | 3,300             | 0.0028                  |                  |                  |
|                                     | 1881    | 1,359,027   | 2,431             | *0.0022                 |                  | 0.0006           |
|                                     | 1891    | 1,488,535   | 4,550             | 0.0031                  | 0.0009           |                  |
|                                     | 1901    | 1,648,898   | 5,245             | 0.0032                  | 0.0001           |                  |
| Nova Scotia.....                    | 1871    | 387,800     | 1,254             | 0.0032                  |                  |                  |
|                                     | 1881    | 410,572     | 1,445             | 0.0033                  | 0.0001           |                  |
|                                     | 1891    | 450,396     | 1,373             | *0.0030                 |                  | 0.0003           |
|                                     | 1901    | 459,574     | 1,392             | 0.0030                  |                  |                  |
| New Brunswick.....                  | 1871    | 285,594     | 788               | 0.0028                  |                  |                  |
|                                     | 1881    | 321,233     | 705               | *0.0022                 |                  | 0.0006           |
|                                     | 1891    | 321,263     | 886               | 0.0027                  | 0.0005           |                  |
|                                     | 1901    | 331,120     | 1,054             | 0.0032                  | 0.0005           |                  |
| Manitoba and the Northwest.....     | 1871    | 12,228      |                   |                         |                  |                  |
|                                     | 1881    | 118,706     | 49                | 0.0004                  |                  |                  |
|                                     | 1891    | 138,127     | 218               | 0.0016                  | 0.0012           |                  |
|                                     | 1901    | 438,925     | 637               | 0.0015                  |                  | 0.0001           |
| British Columbia and the Yukon..... | 1871    | 36,247      |                   |                         |                  |                  |
|                                     | 1881    | 49,459      | 68                | 0.0014                  |                  |                  |
|                                     | 1891    | 98,173      | 130               | *0.0013                 |                  | 0.0001           |
|                                     | 1901    | 204,439     | 299               | 0.0015                  | 0.0002           |                  |
| Prince Edward Island.....           | 1871    | 94,021      |                   |                         |                  |                  |
|                                     | 1881    | 108,891     | 351               | 0.0032                  |                  |                  |
|                                     | 1891    | 109,078     | 333               | *0.0031                 |                  | 0.0001           |
|                                     | 1901    | 103,259     | 357               | 0.0035                  | 0.0004           |                  |
| Dominion of Canada.....             | 1871    | 3,707,252   | 9,423             | 0.0025                  |                  |                  |
|                                     | 1881    | 4,324,810   | 9,889             | *0.0023                 |                  | 0.0002           |
|                                     | 1891    | 4,719,893   | 13,342            | 0.0028                  | 0.0005           |                  |
|                                     | 1901    | 5,369,157   | 16,495            | 0.0031                  | 0.0003           |                  |

\* Decrease.

TABLE 3.—*Indicating the Insane Confined in Proportion to their Total Number, Confined and not Confined, Based on the Censuses of 1871, 1881, 1891 and 1901.*

|                                 | Census. | Total number of Insane. | Number confined. | Per cent. |
|---------------------------------|---------|-------------------------|------------------|-----------|
| Ontario.....                    | 1871    | 4,081                   | 1,366            | 0.33      |
|                                 | 1881    | 4,340                   | 2,521            | 0.58      |
|                                 | 1891    | 5,855                   | 3,888            | 0.66      |
|                                 | 1901    | 7,511                   | 5,152            | 0.69      |
| Quebec.....                     | 1871    | 3,300                   | 788              | 0.24      |
|                                 | 1881    | 2,931                   | 1,683            | 0.57      |
|                                 | 1891    | 4,550                   | 2,548            | 0.56      |
|                                 | 1901    | 5,245                   | 3,025            | 0.57      |
| Nova Scotia.....                | *1871   | 1,254                   |                  |           |
|                                 | 1881    | 1,445                   |                  |           |
|                                 | 1891    | 1,373                   | 878              | 0.64      |
|                                 | 1901    | 1,392                   | 1,014            | 0.73      |
| New Brunswick.....              | 1871    | 788                     | 246              | 0.31      |
|                                 | 1881    | 705                     | 312              | 0.44      |
|                                 | 1891    | 886                     | 466              | 0.53      |
|                                 | 1901    | 1,054                   | 547              | 0.52      |
| Manitoba and the Northwest..... | 1871    |                         |                  |           |
|                                 | 1881    | 49                      | 47               | 0.96      |
|                                 | 1891    | 218                     | 153              | 0.70      |
|                                 | 1901    | 637                     | 452              | 0.71      |
| British Columbia and Yukon..... | 1871    |                         | 16               |           |
|                                 | 1881    | 68                      | 48               | 0.71      |
|                                 | 1891    | 130                     | 123              | 0.94      |
|                                 | 1901    | 299                     | 262              | 0.87      |
| Prince Edward Island.....       | 1871    |                         | 64               |           |
|                                 | 1881    | 351                     | 97               | 0.28      |
|                                 | 1891    | 333                     | 137              | 0.41      |
|                                 | 1901    | 357                     | 184              | 0.52      |
| Dominion of Canada.....         | 1871    | 9,423                   | 2,480            | 0.26      |
|                                 | 1881    | 9,889                   | 4,708            | 0.48      |
|                                 | 1891    | 13,342                  | 8,193            | 0.61      |
|                                 | 1901    | 16,495                  | 10,636           | 0.64      |

\* Previous to 1895 no account was taken in official reports of the number of the insane confined in the county asylums. We have not, for this reason, been able to make use of the statistics to be found in the annual reports of the Nova Scotia hospital for the period commencing 1871.

## THE TREATMENT OF THE MORPHINE HABIT BY HYOSCINE.

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In complying with a promise made several months ago to write a paper on the treatment of the morphine habit by hyoscine, I am cognizant of the fact that this subject has already been discussed in other societies, as well as through the medical press. However, as members of this Association have much to do with narcotic and alcoholic habitués, it cannot be out of place to discuss the treatment of such patients, and in view of the widely different opinions maintained as to the new method of dealing with this class, it is opportune that this subject be discussed at this time.

It is not the purpose of this paper to deal with the causes that lead to the habitual use of morphine; but incidentally I will say the fault is too often with the physician, who first gives the drug for relief of pain without instructions to the patient as to its danger; on the other hand, many use it wilfully for its intoxicating effect, and the strenuous lives of many require such a stimulant to keep them going. In the end, the drug becomes the victor, and the victim appeals to us for relief.

Until quite recently, but little progress has been made in the treatment of this habit, the profession being content to follow the old methods, which have been described as the sudden withdrawal, the quick reduction, and the tapering off. The first two cause untold suffering, and are even dangerous to the life of the patient, while the last only prolongs the agony. Any one who has had occasion to use the sudden withdrawal or rapid reduction methods, or who has ever read the chapter on opium and morphine in Pepper's System of Medicine, in which this

treatment, with its attending horrors, are so graphically described, must surely feel the need of a more humane and rational method of dealing with this class of unfortunates.

I have never used either of these methods, but prior to 1900 treated all by gradually reducing the dose until the amount was small enough to be left off without producing shock. This treatment requires from two to four weeks, according to the condition of the patient, and entails no end of trouble to the attending physician and nurses, by the impatience, fretting and constant begging for a little morphine on the part of the patient, and when the last dose is given there is always a struggle, with more or less suffering and nervousness. In 1900, a friend who had a sanitarium for the treatment of morphinism gave me his treatment, which is hyoscine hydrobromate, and after a trial we were well pleased, because the patient suffered less, and we were able to accomplish in three days, with but little trouble to us, what it had taken us three weeks to do by gradually reducing the dose.

The particular agency used in this treatment is the hydrobromate of hyoscine, a product of *hyoscyamus niger*. The dose is 1-200 to 1-100 of a grain hypodermically. It is a mydriatic, a hypnotic, and a cardiac, respiratory and spinal depressant. In large doses, the effects are the same as those of hyoscyamine and atropine, such as variable pulse, flushed face, shallow respiration, dilated pupils, dryness of the throat and mouth, nausea and vomiting, tremor, unsteadiness, muscular weakness, delirium and stupor. The treatment of hyoscine poisoning should be the same as for atropine, stimulants and coffee.

This we learn from the text-books; let me add that the best antidote for hyoscine is morphine and strychnine. If one remembers this, there is no need of ever feeling the least bit uneasy while treating a morphine habitué with hyoscine.

In the administration of hyoscine for morphinism, the dose should be very small to begin with, say 1-200 gradually increased to 1-100 of a grain to guard against idiosyncrasies. The first effect is to cause the patient to sleep, but after several doses have been given, he becomes wakeful and restless, and in about twelve hours delirium will set in.

As a rule the delirium is mild, and the patient will talk rationally, but sees bugs and picks at the bed-clothing, sometimes



strips himself to find the bug, or something he has lost. I have noted the same things following the continued use of bromidia; the mind clears up in a few hours after the drug is discontinued, and we have never seen any bad after-effects from its use.

The following outline of treatment is usually observed, but sometimes the condition of the patient necessitates some changes:

If possible, keep the patient under observation for a few days, and the amount of morphine and cocaine is reduced to what will keep him comfortable, but this is not necessary. The night before beginning the hyoscine, 6 to 8 grains calomel, in combination with some vegetable cathartic, are given, and this is followed by a saline the next morning. The usual morning dose is given, but when the patient calls for morphine in the afternoon, hyoscine is given instead, and from this time for 36 to 40 hours, the patient must be kept under the influence of the drug, 1-200 to 1-100 gr. being given every two or three hours, according to the condition of the patient, but never enough to completely stupefy him. The patient should be kept in bed, and a nurse is kept with him day and night, because all will not stay in bed, and some undress or otherwise expose themselves.

If the patient is robust and bears treatment well, nothing but hyoscine is given, but if he be weak, or if the pulse becomes weak or irregular, strychnine is given, and if necessary a little morphine or codeine is added. The pulse is usually lowered in rate, and as a rule is of good volume, but occasionally it intermits, or becomes weak; in such cases strychnine is indicated, and the heart's action will become normal after the hyoscine is omitted. I have never seen any trouble in respiration, even in asthmatics. Rarely has there been diarrhoea, nausea or vomiting, but occasionally there has been some trouble, when the condition of the patient was not good before beginning the treatment. There is not much appetite, but water and milk will be taken if given by the nurse at regular intervals, and this is important, otherwise the patient will come out of the treatment feeling prostrated. Some become nervous and do not sleep at all during the first nights, and may require a hypnotic for a while; for this purpose trional or chloral hydrate with bromide of soda may be used with good results. If the patient is put on large doses of bromide of soda for a few days preceding the treatment, or if hyoscine is given in larger doses at

shorter intervals, there will be less nervousness, and he will pass the time in a deep sleep. I have had but one patient to sleep through the treatment, and in this instance the hyoscine was given while he was under the influence of a large dose of morphine.

The after-treatment is the same as in other methods, tonics, nourishing diet and rest. Hyoscine will no more cure the morphine habit than will the gradual withdrawal method, or any other treatment now in vogue. No claim is made for it as a specific for morphinism, but it has been well said that "in hyoscine hydrobromide in morphine habituation, we possess a safe, certain and painless method of treatment," and this remedy merits the attention of those interested in this work. It has been said to be inhuman and dangerous, because it produces delirium and sometimes the administration of stimulants, such as strychnine, atropine and nitroglycerine are indicated. I have seen the necessity for stimulation while treating patients by gradually reducing the dose, and have noted maniacal manifestations with hallucinations of sight and hearing.

Now, just how hyoscine acts and takes the place of morphine I am unable to say, but I know it does, and that too without pain or shock. It does not matter how much morphine alone, or in combination with cocaine, the patient has been accustomed to take, he does not miss the morphine after he is once thoroughly under the influence of hyoscine, nor does he crave it after the treatment is finished. I have heard them say they felt the need of a stimulant on account of weakness, but could not say they wanted morphine.

It has this effect without any mental therapeutics—contrary to what has been claimed—for in one instance (case 2 reported) it was given very much against the man's will. He declared it was a fake and did not want it. He had been treated before by gradually withdrawing the drug, and also had been to a Keeley institute, but did not want any more experiments. He fought against the hyoscine during treatment, declaring that he was badly drugged and often called for morphine during the first day, but his physical condition did not show evidence of shock or pain, and a small dose of morphine, or a hypodermic of hyoscine satisfied him. The result of treatment was entirely satisfactory to us, and the patient was delighted.

In this matter I think the evidence of the patients themselves is worth something. They do not entirely lose consciousness, for they keep up with time, and can talk rationally about their condition. I have seen them laugh at their delusions, telling me just how they felt, and if they suffered we would know it, for we all know that a morphine fiend will not bear pain without letting us know it. They do complain of feeling weak, sometimes the dryness of the mouth and throat is annoying, and a few complain of backache and other minor troubles, but none of the pains incident to the sudden withdrawal of morphine. I have treated some who have run the whole gamut of so-called cures; a few who had been treated here by the tapering-off method, and all have said they suffered less, and had recuperated more quickly from the hyoscine than from any treatment ever tried.

My personal experience in treating morphinism is not very large, for, although my observation covers a period of 15 years, the number of alcoholic and narcotic habitués admitted into a general hospital for the insane is small; yet each year we treat a few. Prior to 1900 all were treated by gradually reducing the dose, and some are still treated in this way, but we have given twelve the hyoscine treatment.

While my success with the twelve cases has been most satisfactory, I would hesitate to recommend this treatment to the profession, were I not backed by men of much larger experience.

Dr. C. C. Stockard, of Atlanta, told me that he had treated over 300, and Dr. George E. Petty, of Memphis, who is a pioneer in this method of treatment, claims that he has treated about 500 with the most gratifying results. I know both of these physicians personally, and have every reason to accept what they say as facts.

To give a clearer idea of this method of treatment, I shall report two cases without comment. These notes were made by my assistant, Dr. T. L. Dobson, during the treatment, and they are given as his observations.

Case 1.—R. C., male, aged 22, general condition good. Lungs and heart normal; pulse 75. Has been taking morphine for several years, and now takes about 15 grains each day by the mouth. Second admission here, having been treated by gradually reducing the dose, but relapsed in a short time. Admit-

ted July 10, 1900. Kept him under observation two days, then gave calomel at bed-time, following it the next morning with a saline.

July 12, gave usual morning dose of morphine, and began hyoscine at 2 p. m., using 1-200 grain.

2.15 p. m.; 1-200 gr. hyoscine.

4.30; 1-150 gr. Patient had been sleeping for two hours. Pulse, 60. Face very red but doing well.

6.30; 1-100 gr. Still sleeping. On arousing called for his supper.

8.30; 1-100 gr. Sleeping, pulse 52. Complains of feeling very warm. Has not called for evening dose of morphine.

10.30; 1-100 gr. Not sleeping. Pulse 72. Complains of being cold. Speech thick and cannot articulate well. Talkative and partly delirious.

July 13, 1 a. m.; 1-100 gr. Doing well, but not sleeping and delirious.

3 a. m.; 1-100 gr. Condition unchanged. Pulse 72.

5 a. m.; 1-100 gr.

7.30 a. m.; 1-100 gr. H. Pulse 72. Says he does not want morphine. Bowels not moved, kidneys acting freely. Would not eat breakfast. Delirious and seeing bugs, but has sane moments.

10 a. m.; 1-100 gr. H. Has delusions, but is doing well and says he has no thought of morphine.

12 m.; 1-100 gr. Condition unchanged, except pulse is slightly intermittent. Delirious and hard to keep on bed.

1 p. m.; 1-30 gr. strychnine nitrate, and glass of milk punch. Took no dinner except milk. Complains of headache. Does not want morphine.

2.30; 1-150 gr. hyoscine. Pulse 82. Still delirious. Mouth and throat dry. Ordered mouth washed out with cold water every few minutes.

4.30; 1-100 gr. H. and 1-30 gr. strych. Pulse 90. Delirious and very nervous, picking at bed-clothes, sees bugs, and is afraid of the hypodermic needle. Took half an ounce of whiskey.

6.30 p. m.; 1-200 gr. H. Temp. 100. Pulse 78. Very restless, seeing bugs, but does not want morphine.



10.30 p. m.; 1-250 gr. hyoscine and 1-30 gr. strych. Temp. 100. Pulse 78. Seems more rational, but very restless and tossing about the bed. Takes whiskey every four hours, but refused morphine.

July 14, 8 a. m.; Temp. 100. Pulse 84 and regular. Has had no hyoscine since last night at 10.30. Patient doing well and sitting up. Says he has no desire for morphine, but is nervous, and 15 grains of bromide of soda were given. He ate a little breakfast.

6 p. m.; Temp. 99.4°. Pulse regular. Feels perfectly well, and has no desire for morphine. Slept about two hours. Ate a good dinner and has had lemonade freely. Kidneys acting freely. Called for bath. Prescribed a tonic of tinct. of nux vomica and tinct. cinchona comp.

This ended the treatment, and the patient was discharged in a few days apparently quite well.

Case 2.—E. W. Admitted August 4, 1900. Age 30. Condition bad; thin, anemic and constipated. Heart weak, pulse 80. Asthmatic, and breathing difficult at times. Has taken morphine for asthma for several years, now taking about 30 grains morphine and as much cocaine as possible during the day. Has been treated several times by the gradual reduction method, as well as in a Keeley institute. Is opposed to the hyoscine treatment. After keeping him under observation for two days, and allowing him all the morphine he wanted, the special treatment was commenced after unloading the bowels.

August 7, 8 a. m.; 3 grs. morphine.

11.15 a. m.; 1-200 gr. hyoscine. Temp. 98. Pulse 96. The quick pulse due to excitement incident to taking the hyoscine.

11.30 a. m.; 1-200 gr. hyoscine with 1-30 gr. strych. nitrate. Feeling weak, and complains of feeling very hungry.

12.45 p. m.; sleeping soundly, but roused up and drank three cups of sweet milk and ate three small cakes. Does not call for drugs; says he is comfortable, but very weak.

2 p. m.; 1-200 gr. hyoscine. Was still sleeping; says he is badly drugged. Pulse 72, full and strong. Wants to eat.

4 p. m.; 1-150 gr. H. and 1.30 gr. strych. Sleeping when called. Ate a little. Begged for morphine and cocaine. Has begun to see bugs.

6 p. m.; 1-125 gr. H. Still begging for morphine and cocaine. Not well under the influence of the drug, but sees bugs, and says he cannot think or talk. Pulse 90.

8 p. m.; 1-125 gr. H. and 1-30 gr. strych. nitr. Still delirious, and sees bugs. Does not call for drugs. Had two eggs, some toast and sweet milk for supper. Pulse 66.

10 p. m.; 1-100 gr. H. Not so delirious, but sees bugs. Begs for morphine and cocaine. Has not slept since 4 o'clock. Pulse 72.

12 p. m.; 1-100 gr. H. and 1-30 gr. strych. Doing very well, but still delirious and not sleeping. Sometimes calls for his drugs.

August 8, 2 a. m.; 1-100 gr. hyoscine. Still buggy.

4 a. m.; 1-100 gr. H. and 1-30 gr. strych. nitr. Still buggy.

7 a. m.; 1-100 gr. H. Pulse 60. Kidneys and bowels acting. Had milk-toast for breakfast. Still delirious and occasionally calling for morphine and cocaine. No evidence of suffering.

9 a. m.; 1-100 gr. H. and 1-30 gr. strych. Pulse 66. Condition very good. Drank half a glass of milk punch, whiskey nauseating him. Delirious, but not calling for drugs as much. Sees bugs of all kinds.

11 a. m.; 1-100 gr. H. Pulse 60, good and strong. Still very delirious, and seeing more bugs than ever. Not calling for morphine.

2 p. m.; 1-200 gr. H. and 1-30 gr. strych. Thoroughly under the influence of the drug. Delirious and catching at bugs. Ate but little dinner, and vomited the few mouthfuls taken. Pulse 60.

4 p. m.; 1-200 gr. hyoscine. Very delirious, but called for drugs. Pulse 72, full and strong.

6 p. m.; 1-125 gr. H. and 1-30 gr. strych. Still wanting drugs not so much morphine, but "any old drug." Condition good. Pulse 66.

8 p. m.; 1-150 gr. hyoscine.

10.30 p. m.; 1-200 gr. H. and 1-30 gr. strych.

2.30 a. m.; 1-30 gr. strych.

August 9, 7 a. m.; 1-30 gr. strych. nitrate. Says he feels very badly. Called for drugs, but delirious and hardly knows what he wants. Vomited large quantity of bile after drinking some water. Retained lemonade.

10.30 a. m.; 1-30 gr. strychnine. Still nauseated and vomiting everything taken. Weak and condition bad. Gave 2 grains calomel and soda.

1 p. m.; 1-4 gr. morphine to quiet stomach. Bowels acted at 1 o'clock, but still vomiting.

2 p. m.; 1-30 gr. strychn. sulphate. Not so much nausea, but does not retain anything as yet. Feels some better.

4.30; eating a peach and feels much better.

6 p. m.; 1-30 gr. strychn. nitrate. Much improved, ate some supper and feeling very well. No nausea.

10 p. m.; 1-30 gr. strychn. Doing well.

August 10, 2 a. m.; 1-30 gr. strychn. nitrate.

August 10, 8 a. m.; doing well. Gave tonic of tinct. cinchona comp., elix. gentian and chloride of iron and strychnine.

August 11; doing well. Does not want morphine or cocaine.

August 17; improving every day, and from this time made a good recovery, and never called for morphine. Sleeping well.

#### DISCUSSION.

DR. BURR: After considerable experience in the treatment of patients suffering from morphine addiction, experience with the rapid reduction of the drug, and experience with its abrupt withdrawal I now incline to the former course of treatment and latterly have used it almost exclusively and find no reason to be anxious about my patients. But under the old system, that of suddenly withdrawing the drug, there was often occasion for considerable anxiety. By rapid reduction I mean that the amount has been reduced to a very small quantity in the first twenty-four hours and suspended altogether at the expiration of from seven to ten days. Doctor Buchanan spoke of a period of from two to four weeks as being that of gradual reduction. So that my rapid reduction covers a period a little shorter than his minimum. I question whether it is expedient to substitute delirious conceptions for the longing for morphine, and this is a thought which I have gleaned from the doctor's paper—that while the patient did not desire morphine particularly, his concepts were of a delirious nature, and that he was mixed, confused and considerably prostrated. I regret that Doctor Richardson is not here to discuss the paper. He has had at least one experience where acute mania was induced by the hyoscine treatment of morphine—in one case he had, it lasted for several weeks. I believe, however, that the doses of hyoscine which were given were much larger than those given by Dr. Buchanan. I am inclined to the rapid reduction of the drug, giving cardiac stimulants and careful nursing and watching the patient closely.

DR. JELLY: I would like to ask Dr. Buchanan as to the permanency of cure by his method as I find this is the great curse in morphine.

DR. BUCHANAN: I do not claim that hyoscine is a cure for morphinism. My experience with it, and with other methods, has led me to believe that but a small per cent is permanently cured by any treatment.

DR. C. G. HILL: For a long time I have had very decided and established views on the subject of morphia treatment, and briefly they are as follows: The very best substitute for morphia is morphia itself in a little smaller quantity, and the best method of treatment consists in the gradual withdrawal. I think we make a mistake in withdrawing it too rapidly. The patients are unreliable—absolutely so. You can never believe them, especially when they begin to talk about morphine. If a man who comes to an establishment for treatment does not conceal morphia about his person he is a fool and I tell him so. If the patients have the instinct of self-preservation they should hide the morphia about them. I am candid with them and tell them that I shall withdraw it gradually, but not altogether, and that they shall not be allowed to go as cured until I am convinced that they are no longer taking the drug. That is a very important matter, for you cannot rely upon their statements, for even while they are claiming to be cured they have it concealed about them, and it is only to get out and get their full supply that they say they are cured. We cannot promise to cure any patient permanently of that habit. There are cases in which the patient has got into the habit accidentally and regrets it very much. If such people are put in a safe position they will for the balance of their lives refrain from morphia. But others either from a lack of will power or through a bad nervous organization cannot do it. But while we cannot guarantee to relieve them of any desire to take morphia we can do this: If we put a man in a good physical condition, so that he is strong and well and digests his food, sleeps well, and has no nervous derangement, that man has a better guaranty that he will be able to withstand the craving for the drug than has the man who is allowed to leave the institution after a short stay during which the principal treatment has been the rapid reduction of the quantity of the drug. The desideratum is not to take the drug away but to remove the condition induced by the drug. The withdrawal of the drug leads to deranged secretions. If you examine the urine and then withdraw the drug for twenty-four hours you will be impressed with the great change in its constitution. There is a complete relaxation, there is a rapid exhaustion that leaves the patient in such a condition that if he is turned out of the institution in this condition he is so weak that he will immediately go back to morphine.

My treatment is to reduce it so gradually that they are two or three or several months in getting relieved of it. Then they go away permanently, or some for a few years or even a few months, and then come back again knowing that the treatment is not painful. They improve and go away, too frequently, however, only to drop back and then we do the best we can again when they come back for repeated treatment.

DR. DREW: I do not think it fair to criticise too closely any problem in medicine with which we have not had experience. I have never treated the morphine habit with hyoscine. But there was a time when I used hyoscine quite a little and came to regard it as a very dangerous drug. I used



it in cases of maniacal excitement, but I do not think I would do so again. I have seen several cases of extreme prostration from it. It is a very potent drug and we find patients who are extremely susceptible to it. There may be a physiologic antagonism between morphia and hyoscine as there is between atropine and morphia. I know that some of the physical effects are comparable to atropine, and it may be quite safe to give 1-100 of a grain of hyoscine to a patient who has been taking large doses of morphia but I should be very much afraid to do it. It may be also necessary to treat voluntary patients in a different way from that which we treat patients in a public institution where the patients have not the opportunity to conceal morphia about them.

I have been very well satisfied with the rapid reduction of morphia, so that the patients are entirely free from the use of morphia in a week or ten days, and I think that is about the best and safest way of dealing with them.

## APPARENT RECOVERY IN A CASE OF PARANOIA.

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*By Richard Dewey, A. M., M. D.,  
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The following case, presenting several unusual features, seems worth placing on record. It is reported with some changes in non-essential external details for obvious reasons:

Case No. 1351, male, aged about 40. Single, journalist. Academic education. Father died of spinal meningitis in middle life. Mother, who died at over 70, was of good constitution. Six healthy brothers and sisters.

The patient, who was under treatment about four months in 1901, possessed a good constitution, was athletic in his youth, and had good health until about twelve years previous to coming under my care, when he was overcome with heat in a sub-tropical climate. From this time on he was very sensitive to the heat of the sun and presented a difference from his former self in being over-watchful and careful of all his feelings and symptoms; in fact, hypochondriacal and scarcely engaging in any business or employment, fearing to overtax his strength. His habits were very temperate; he did not use alcohol or tobacco. Venereal disease was denied and not shown by somatic signs. The patient led an easy and self-indulgent life, moving in affluent and fashionable circles of a large city, and was fond of social display. Personally he was possessed of very slender means.

The first indications of a morbid mental state, aside from hypochondria, had appeared about a year prior to my examination of him. He had previously fallen into financial difficulties by incurring expenses he could not meet, for flowers, bric-a-brac, etc. Finally a curio dealer, who had been unable to collect a bill from the patient, applied for payment to some very

highly-placed people who had introduced him. This led to the patient being denounced among his own associates and, naturally, seriously hurt his feelings as well as standing and reputation. The first delusions of having enemies and being persecuted took their rise in this fact and were further intensified by his ungratified ambitions and desires, especially with reference to a beautiful, young unmarried woman, a blood relation of his, to whom he was most deeply attached and who was the recipient of universal homage and also of more substantial attention from numerous friends, such as he would have liked to bestow upon her had he been able. His feelings resembled a fatherly affection, distorted by mental weakness and childishness, quite free at first from delusional ideas and mingled to a certain extent with envy. A friend of the family (whom we will call Mr. X.), a possessor of millions, together with his wife, provided for the young lady an extensive European trip and presentation at foreign courts, which seemed especially to incur the resentment of our patient, and on the return of the party from Europe morbid suspicion and dislike found still further development. The patient appeared to have fears for the reputation of his relative, such fears as insanity alone could account for, but which produced a consternation and embarrassment readily imagined, for the patient began to construe the simplest and most innocent acts of the young lady in a sense unfavorable to her chastity. Next, suspicions and delusions began to develop relating to Mr. X., who in reality had only the greatest goodwill for the patient. A very curious delusion was evolved in connection with Mr. X. It appears the millionaire had sprung from very humble life and a rumor had gained currency that he once had been an hostler in a livery stable. Our patient had written the millionaire requesting permission to deny this story and had received a reply to the effect that it was not true, but that he, Mr. X., had once owned a livery stable and did not care who knew it; that the people of —— might say what they pleased, it was their privilege and made little difference to him, etc. Now it appears that this letter had been lost and in the meantime the owner of millions was supposed to have plans to become a candidate for a high elective office, and the above-mentioned letter began to assume great importance in the eyes of the patient (but not otherwise, as far as I know). The pa-

tient in the meantime had gone to a beautiful summer resort by the sea, and, while stopping here, his delusions grew and multiplied and branched forth luxuriantly. He presently expressed the idea that Mr. X. did not believe his story of the loss of the letter, but was possessed by a suspicion that he, the patient, intended to make public use of it in order to injure Mr. X.'s aspirations for office, under the belief that the expression of scorn for the opinion of the people would hurt Mr. X.'s standing with his constituency. This absurd idea led to protestations on the part of the patient that the letter was truly lost, which he appears to have gratuitously supposed Mr. X. did not believe, and presently the patient began to think himself the object of the most diabolical plots to recover the letter or put him in a position where he could do no harm, by capture and deportation, imprisonment, poison, defamation of character, or even murder, if necessary. He also fancied that his personal effects were clandestinely searched and his footsteps dogged by detectives, and that orders were out to secure this important document at any and all hazards. The patient constantly protested his innocence and the truth of the story that the letter was lost, but fancied no one believed him. He became desperate in his apprehensions, taking all efforts made to reassure him and relieve his mind as only so much added deception. Under these circumstances he began to think it necessary to defend his life and he went constantly armed, talked of the danger he was in and when coming to his meals in the public dining-room at the hotel, would take a revolver from his pocket and lay it beside his plate loaded and cocked. Under these circumstances he was naturally taken into custody. He was removed to a fashionable hotel in the city where two deputy sheriffs guarded him. He remained here some days attended by his physician and by his beautiful relative. He sought to bribe his guardians by offering \$200 to one of them if he would let him out upon the street with his revolver in order that he might kill Mr. X. and all his enemies. His delusions now spread so as to embrace his doctor and his lady relative. He charged the latter with treachery to himself and, because she followed the doctor from the room to speak with him privately, he cast unworthy imputations upon her character, alleging he heard the two agreeing upon a time and place for an intrigue. This appears to have been the first



appearance of auditory hallucinations, which were never markedly developed or were concealed.

At this juncture the patient came under my care. His condition upon admission was as follows: Scarcely any abnormality was shown by physical examination except that some of the nervous reflexes varied considerably from the normal. The knee-reflexes were nearly abolished, the left irregularly giving a sudden jerk, but both sides, as a rule, requiring reinforcement to be even slightly brought out. The pupils were sluggish in reaction to light and accommodation. Some slight irregularity in the outline of the pupils was present, the left seeming slightly wider than the right. Standing with the eyes closed he developed a good deal of swaying and the legs were somewhat clumsy and not well controlled in walking, but no incoördination was present, the patient walking as well with the eyes closed as open and turning well. These, the only physical abnormalities, had raised a suspicion of paresis in his home physician's mind, but were, perhaps, largely to be accounted for by loss of sleep and muscular weakness, nervous agitation and the narcotic drugs employed. Examination of the blood showed a normal specimen. The family history was excellent and there was no indication of specific disease. After admission, further delusions and hallucinations were evolved, and for a month the condition grew worse. The patient began at once to show considerable agitation under the delusion that tuberculous poison had been given him and his lungs were breaking down. He believed that hypodermic injections containing tubercle bacilli were given him at night when he was asleep; that poisonous gases were blown into his room and powders scattered over the bed and furniture which he could distinctly smell. All food and medicine he looked upon with the greatest suspicion, taking only eggs with the shells on, baked potatoes or loaves of bread from which he could, as he thought, extract uncontaminated portions. As he would receive no medicine from us voluntarily, to quiet his fears, and at the same time secure treatment, he was allowed himself, under proper restrictions, to go and get approved prescriptions filled at any drug store he chose and to eat at any place he considered safe. He regarded all the persons around him as parties pro or con to the great conspiracy against him; he thought he heard people talking

about him and attached some significance to every look and word. He drew checks and gave them as a reward to those he thought were working for him, "who could do their entire duty and yet remain 'gentlemen.'" A week after admission he suddenly conceived that his left hand and forearm were paralyzed and complained often of numbness and of hot and cold sensations in his legs and body. He soon ceased to say anything of his lungs being affected, but complained of his stomach, kidneys and bladder. Later there were complaints of pains in the legs and fancied inability to walk. He insisted upon having a carriage to go a couple of blocks.

In less than two months' time a change for the better began to appear. The patient took a good deal of out-door exercise, walking long distances with pleasure; he began to sleep better, voluntarily took hydrotherapeutic treatment at the bath-house; he would have days nearly approaching normal and then for a few days a return of the suspicions and delusions, which, however showed a substantial abatement and practically disappeared with a sudden ebullition of wrath because he fancied someone had been marking the pages of his Bible. He loudly announced that if he found it true that anyone had made marks in this sacred book, he would shoot the offender on sight without the least compunction.

As greater clearness and rationality supervened in this case the patient began to show a religious change which seemed at first to be of a morbid character, but later proved to be of the usual and normal type. On seeing a benevolent looking elderly clergyman one day going through the house, he asked for an introduction and from this time gave himself much to religious thought and meditation. He stated that he heard someone saying he had "broken every command of the decalogue." He looked up the ten commandments in the 20th chapter of Exodus and later announced to me that he had at least never borne false witness against his neighbor.

Not long after he informed me that he was making the Golden Rule the rule of his life, and he now began to show a totally different spirit, even toward those he had considered his enemies, at the same time admitting he had been mistaken in his unjust suspicions.

This change of a religious character I regarded with suspicion as being of a morbid character, but on further careful study and observation reached the opinion that it was healthy in its nature. It grew from the natural effect of the afflictive experiences of life which tend to turn the thoughts in a religious direction, the patient feeling keenly the loss by death of his mother, which had occurred shortly before he came under my care. Moreover, as his mental processes became more clear, he began to fully appreciate the disastrous effect which the fact of his mental overthrow must have upon his life, and the position in which such a calamity places its victims before the world. As a result he experienced what is ordinarily termed "a change of heart," turning from earthly troubles to the consolations of religion. He evidenced a most earnest desire to make amends for his past misdeeds and wasted opportunities, and in his daily life and conduct the effect became plainly evident. He spoke of those toward whom he had formerly cherished resentment with entire absence of ill-will and indeed with regard, and sought to prove by his life and actions the sincerity of his purposes in a manner more indicative of mental soundness than of insanity. He very quietly and unostentatiously became a member of the Methodist church, selecting the Methodist church as it was the one in which he had been reared and of which his mother had been a devoted member all her life. There was a certain amount of religious exaltation evident when the patient spoke of these experiences. He mentioned a consciousness of his mother's influence and presence, rolling his eyes heavenward, and I feared there might be something morbid in this until I closely questioned him and found his idea was precisely such as anyone, who cherished the orthodox beliefs might entertain of a departed friend being in heaven among the ransomed and angelic hosts and perhaps interceding for some loved one yet on earth. He particularly disclaimed any idea of the visual or auditory phenomena which go to make up insane hallucinations.

In a little less than four months' time after coming under my observation and about one and a half years' time after the first delusions of persecution appeared, this patient was sane. No trace remained of any of the delusions or hallucinations, and he himself recognized them as having been unhealthy and unnatural.

His physical condition was normal excepting slight diminution of the patellar tendon reflex, the other abnormalities, slight in themselves, having disappeared.

I had but little faith in the permanence of this recovery, but have carefully followed the subsequent history of the patient and learn that he is considered by his friends, at this date, twenty months after his return home, to be in good health and to have made an excellent recovery. He is doubtless still hypochondriacal and I do not learn that he is engaged in any regular occupation, but the disappearance of what appeared like chronic systematized delusions unaccompanied by any marked mental weakening is the point I wish to emphasize.

Without going into an elaborate differential study of the above case (which study it is to be feared would result only in bewilderment, such are the variations in the views of different alienists), it may be stated that the essentials of paranoia, slow development of systematized delusions, without marked intellectual weakening and without extreme affective or emotional disorder, were present and warranted the diagnosis, and in view of the fact that paranoia is agreed to be a psychosis of incurable nature by most writers, the disappearance for nearly two years of all its symptoms seems worthy of record.

NOTE.—Since the above was written, I learn that the patient has continued well and in the summer of 1903 the proceedings by which he was adjudicated insane, were annulled by the court and the patient was reinstated in his civil rights.

#### DISCUSSION.

DR. R. F. GUNDRY: The case described by Dr. Dewey resembles that of a young man 24 years of age, who came under my observation in May, 1895. He had been a traveling salesman with a fairly good family history, and while on a trip south, he imagined that a certain physician in Richmond had hypnotized him. At one place he assaulted a man and was put in jail, where he remained for some time. His brother finally located him and took him to his home in Virginia, and from the account given by his relatives, he must have been delirious for a week or ten days. When admitted to "The Richard Gundry Home," he was very quiet but constantly hearing voices. He would come to my office to talk with me, and when leaving the room would suddenly return and accuse me of calling him all sorts of horrible names. The first two months there was no improvement, in fact he became more suspicious of every one. At the suggestion of Dr. George J. Preston, who was consulted, he was given large doses of iodide of potash—15 grains three times a day and gradually increased until he was taking 100



grains a day. In about two weeks' time the hallucinations had entirely disappeared and his physical condition improved rapidly. In October 1895 he was discharged as having recovered, though a diagnosis of paranoia had been made and had to be changed. Shortly after leaving, he secured a place in the Internal Revenue service, which he held for some time. Two years later he wrote to ask if I thought he had ever been insane, as he had applied for a life insurance and his application would depend very much upon my statement. I told him that there was no doubt as to his having been insane, but, as he had remained well for two years, and considering the supposed cause, I was inclined to look upon him as a fairly good risk. On the strength of my statement, I believe he was accepted by the insurance company. Nothing more was heard of him until 1899, when he returned to the "Home" in very much the same condition, with hallucinations of hearing, etc. He was put on the same line of treatment, but he did not respond. After remaining for a short time, he was taken to New York, and was seen by Dr. Frederick Peterson, who, I am told, diagnosed his case as one of sub-acute hallucinatory insanity, and told him that by hard manual labor and building up physically he would likely get well. He again returned to the "Home" and Dr. Peterson's directions were faithfully followed for two months, but the patient grew steadily worse. For fear of his injuring another patient, I was obliged to ask his brother to remove him, and he was transferred to another institution. I heard the other day that he was still confined in one of the state asylums in Virginia and was considered a very dangerous patient, due to his persistent delusions of persecution.

DR. MICHAEL CAMPBELL: I have to report a case of a young man of robust physical health, fine looking—a traveling man, with hereditary insanity in his family. After a protracted drinking bout he developed hallucinations of hearing. When passing down a stairway he thought he heard a lady say to him: "There goes the burglar, it is astonishing they let him go around here." He at once left that hotel, but found that he was preceded by these people who made such remarks. He came back home and abstained from whiskey for a time, but was unable to do his work. He was brought to the hospital and stayed a month there. He was put on tonic treatment and discharged at the end of the month with no reappearance of his trouble. He has remained well, and that was last December.

DR. DREW: I was extremely interested in Doctor Dewey's paper and as I listened to it three facts impressed themselves upon my memory. One was that a man never lost his personality; if he was a paranoiac he doubtless would have had a change in personality. If a paranoiac will recover it is reasonable to think that he will recover in the first or initial stage of the disease. Then the alcoholic factor seemed to me important, for I think the doctor said that the man had been self-indulgent, and that usually means that he has drunk freely.

I was pleased to note that so good an authority as Dr. Dewey gives us an instance in which religious impressions had a good influence in a case of insanity. It seems to me that it is a too prominent opinion among us that

religious impressions have but one effect, but here we have a case in which such impressions did seem to help the man.

DR. BURR: The case of Dr. Dewey reminds me of a case which I diagnosed as paranoia and which came under my care for treatment, in the hospital which I have in charge, some years ago. The patient was an egotist; he had extravagant delusions developing upon delusions of suspicion and the case bore in every particular a resemblance to paranoia. When, after a period of treatment extending over several months he became apparently well, I was inclined to modify my diagnosis, or change it rather. After a painstaking effort to discover the existence of any delusions, I gave up the idea that he was a paranoiac and became convinced that I was mistaken. In a period of less than six months, however, he broke down again with symptoms similar to those which he developed during his first period of treatment. This case was also like the one that Dr. Dewey reports, in that the patient was dangerous and threatening even if not actively homicidal.

DR. FRANKLIN: In Dr. Dewey's case I do not remember his having said very much of the history of alcoholism, and yet I find a number of cases similar to his in which though alcohol is denied, yet the patient has run a course of dissipation. And afterwards his friends and relatives will tell you that there is such a history of alcoholism. The cases that Krapelin describes as alcoholic hallucinosis seem to me very much like the case that Doctor Dewey describes. However, I do not want to question Doctor Dewey's diagnosis of the case.

DR. DEWEY: In reply to Doctor Pomeroy's inquiry as to the treatment adopted in the case of paranoia which I described, I would say that there was nothing which would be of especial interest or novelty in the treatment of that case. The treatment given might be called almost routine treatment, and it did not seem to me that the object with which I presented the case called for details of treatment. As soon as the patient could be induced to take it, he was given hydrotherapeutic treatment with nerve tonics. In the earlier stages some sedatives, bromides and hypnotics were used. But all of those put together were probably not as important as what we are wont to call for want of a better name, the moral treatment. He had with him an excellent young man as a companion who had a very good influence over him and who did more for him, I believe, than the doctors. He was by every possible means diverted from his delusions and healthfully occupied physically and mentally.

So far as alcoholism was concerned there could be no question of it for the man had been for twelve years most precise as to his food and had been strictly temperate not only with regard to alcohol but with regard to everything else.

## NOTES ON MALIGNANT GROWTHS IN THE INSANE.

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*By John Rudolph Knapp, M. D.,  
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Realizing the interest taken in the subject of malignant growths, and appreciating the untiring efforts of an honorable profession striving to solve the etiological problems connected therewith, the idea occurred to me—and was approved by Dr. A. E. Macdonald, superintendent of the Manhattan State Hospital East—that a paper embodying the subject as observed in our hospital might not prove uninteresting for the consideration of the Association.

It was found from examination of the reports of the Manhattan State Hospital for eight years ending September 30, 1896 (where the total number of male and the total number of female patients under treatment were nearly equal, and the total number of male and the total number of female patients who died were also nearly equal), that one patient died from malignant growth for every 418 patients under treatment, and for every 111 patients who died, one died of a malignant growth; also, that the female deaths from malignant growths exceeded those of the male in the ratio of two to one.

In the Manhattan State Hospital East, which has been until recently the male department of the Manhattan State Hospital, it was found from examination of the records from the beginning that one patient died from malignant growth for every 626 patients under treatment, and for every 217 patients who died, one died of a malignant growth.

The twelfth census of the United States, that of 1900, shows that the death rate from cancer and tumor is 60 to 100,000 of the population, or 1 to 1,666. However, as cancer is usually a

disease of adult life, and especially so in the insane, a comparison of frequency without allowing for this would perhaps be misleading. As the adult population at large is about two-thirds of the whole, an estimation on this basis would give one death from malignant growth to 1,112 of the general adult population.

It is, therefore, seen that malignant growth is more than twice as frequent among the insane as among the adult population at large, and nearly four times as frequent among the insane compared with the general population.

From the beginning, a total of 31 male patients have died from malignant growths; of this number there were 22 cases of carcinoma and nine of sarcoma, five of the latter being instances of sarcoma of the brain. As many of these cases presented special points of interest, a short detailed description may not prove uninteresting.

*One Patient Died of Primary Carcinoma of the Pancreas:*

An English laborer, aged 32, an advanced case of paresis of unknown duration, with a history of intemperance. One month prior to his death he complained of acute abdominal pain; this was followed by profuse bloody diarrhœa. The neoplasm was detected in the region of the pancreas by palpation. He died of perforation of the intestine.

*Two Patients Died of Epithelioma Originating in the Mucous Membrane of the Jaw:*

One, a colored waiter, aged 39, who suffered from chronic mania for eighteen years.

The other, an artist, aged 45, a native of the United States. He was a demented patient who had had epilepsy for two and a half years.

Both were untidy in their habits and the latter had a history of specific disease. The growth originated three weeks prior to death in the first case, and eight months in the latter. Both died of sapræmia and exhaustion.

*Two Patients Died from Epithelioma of the Base of the Tongue and Pharynx:*

One, a German, aged 48, of unknown occupation, an advanced case of dementia, with no definite information as to the previous form of insanity, or of the duration of the growth.



The other, a German merchant, aged 49, of intemperate habits, a case of dementia following melancholia. In this case the growth appeared  $8\frac{1}{2}$  months before death, and the insanity four months later, the former being the assigned cause of the latter.

Both died from sapræmia.

*One Patient Died of Carcinoma of the Left Orbit:*

A Canadian draper, aged 52. He had been operated upon  $6\frac{1}{2}$  weeks before admission, his insanity dating from that time. He was a case of acute mania merging into dementia. Death occurred on the day after admission. The duration of the growth could not be determined.

*One Patient Died of Epithelioma of the Side of the Tongue:*

A Swiss, aged 52, a demented paretic with a history of specific disease which was the assigned cause of his insanity. Paresis had existed  $1\frac{1}{2}$  years before the development of the growth, and the patient died four months after its first appearance.

*Two Patients Died of Epithelioma of the Face:*

One, an Irish tailor, aged 53, of intemperate habits, a case of senile dementia of over five years' duration; the other a French merchant, aged 68, of intemperate habits, suffering from dementia secondary to melancholia of three years' duration. In both cases the growth developed six weeks prior to death; in both it was very painful and bled easily, and both showed evidence of arterial degeneration of the brain. The immediate cause of death in both cases was exhaustion. The former patient suffered during the last three years of his life from convulsions of an epileptiform character.

*Two Patients Died of Epithelioma of the Penis:*

One, an Italian waiter, aged 62, a paretic of over three years' duration. The growth developed one month prior to death. The other, an Irish laborer, aged 50, who had undergone privations and been in the almshouse. He was suffering from senile dementia of unknown duration. The growth developed four months prior to death, and was said to have followed chancroid. He showed evidences of arterio-fibrosis with kidney involvement.

The first patient died of sapræmia, the second of uræmia.

*Three Patients Died of Carcinoma of the Rectum:*

One, an Irish laborer, aged 75, of temperate habits, a case of senile dementia of three years' duration. He was hemiplegic

and had suffered from epilepsy for twenty-five years. The growth developed one month prior to death.

The second, an Italian laborer, aged 35, of temperate habits, a case of acute mania, passing into dementia, although he had recovered from a previous attack three years before. The carcinoma, following fistula in ano, developed one month prior to death.

The third case occurred in an Irishman, aged 40, a demented imbecile of no occupation. The growth developed six weeks prior to death.

These three cases were similar in the rapid development of the growth, and in the excitement, restlessness and irritability which attended the insanity. All three died of sapræmia.

*Two Patients Died of Primary Carcinoma of the Liver.*

The first, a laborer, aged 30, a native of the United States, with a history of arterial disease in his mother. He was a case of simple melancholia of unknown duration, who had begun to show symptoms of dementia. Upon admission, he presented evidence of enlargement of the liver, followed by vomiting, ascites and jaundice. He died 2½ months later of exhaustion.

The other, a French Hebrew, aged 47, an hotel messenger, who had been insane for twenty years, worry being assigned as the cause. He suffered from dementia, secondary to acute mania. The entire surface of the body, except the face and scalp, was covered with eczema, from which he had suffered for years. Two months prior to death he developed symptoms of carcinoma of the liver, jaundice, vomiting, loss of appetite, and diarrhœa. The immediate cause of death was sapræmia.

*Two Patients Died of Epithelioma of the Lower Lip:*

One, an Irish carpenter, aged 54, who suffered from dementia, secondary to melancholia, of over five years' duration, for which intemperance was the cause assigned. The growth began to develop four years prior to death, the immediate cause of which was exhaustion.

The other case was an English peddler, aged 42, of temperate habits, whose parents both died of asthma. He was a case of acute mania, progressing rapidly into dementia. In this case the growth and insanity developed simultaneously, the former being the assigned cause of the latter. The immediate cause of

death, which occurred four weeks after the first appearance of the growth, was sapræmia.

*Four Patients Died of Primary Carcinoma of the Stomach:*

One, a colored patient, aged 20, a native of the United States, of no occupation. He was a case of acute melancholia of unknown duration, which had passed into dementia. Three weeks prior to death, the immediate cause of which was exhaustion, he presented symptoms of carcinoma of the stomach. The growth infiltrated the liver and pancreas.

The second was a German baker, aged 60, of very intemperate habits, who suffered from senile dementia, the exact duration of which (covering a period of years) was indefinite. He presented symptoms of valvular heart disease and general arterio-fibrosis. The duration of the growth could not be determined. He died of gastric hemorrhage.

The third was a German driver, aged 61, of slightly intemperate habits, who suffered from pulmonary tuberculosis. The insanity and symptoms of the growth appeared simultaneously five weeks prior to death, the immediate cause of which was exhaustion.

The fourth patient was an Irish groom, aged 42, a moderate drinker, who suffered from chronic melancholia of two years' duration. Three months previous to death, the immediate cause of which was exhaustion, he presented symptoms of gastric cancer.

These four cases were similar in the rapid development of the growth; all were cases of agitated melancholia, merging rapidly into dementia, and the insanity in all was characterized by gloominess and depression, suicidal tendencies, delusions of persecution, and vivid hallucinations.

*One Patient Died of Sarcoma of the Left Breast:*

An Irish cooper, aged 68, of intemperate habits. He suffered from dementia, secondary to melancholia, of  $20\frac{1}{2}$  years' duration; the melancholia followed a left-sided hemiplegia. The tumor was said to have existed many years, but its duration could not be definitely determined. One month prior to death, it began to ulcerate causing intense pain, and he died of exhaustion.

*One Patient Died of Sarcoma of the Right Shoulder:*

An Irish salesman, aged 47, who suffered from dementia, secondary to chronic mania and epilepsy of 7½ years' duration, and who had suffered from an attack of insanity eight years previously. The causes assigned were syphilis, domestic worry and masturbation. Three years prior to death, a sarcoma of the shoulder developed, involving the entire deltoid muscle. A very painful ulceration began in the neoplasm, and the patient died of sapræmia three weeks later.

*One Patient Died of Sarcoma of the Liver:*

A native of the United States, aged 24, an electrician of intemperate habits, who suffered from dementia secondary to acute mania. His father died of apoplexy. Four months prior to death, he became jaundiced, suffered from pain in the region of the gall-bladder, the liver enlarged, ascites supervened, the temperature rose, vomiting and occasional nose-bleed followed. He died of general œdema and exhaustion.

*One Patient Died of Osteosarcoma of the Left Knee:*

An Irish laborer, aged 44, who had been an inebriate. He was a demented epileptic of the maniacal type. His insanity had existed for more than nine years. The sarcoma existed for more than nine years also, but the exact duration could not be determined. During the last two months of his life, his physical condition failed and the neoplasm enlarged. He died of exhaustion.

*Five Patients Died of Primary Sarcoma of the Brain:*

Three cases were instances of single and two of multiple sarcoma. All were demonstrated by autopsy. The first, in a man aged 40, originated in the dura mater over the sella turcica, and was a small round-celled sarcoma. The second, in a man aged 51, originated in the cerebral falx adjacent to the parietal lobe, and was about 38 millimeters in diameter. The third, in a man aged 34, was a multiple fibrosarcoma of the dura. The larger tumor, 38 millimeters in diameter, was situated near the left Sylvian fissure; the smaller, 12 millimeters in diameter, was situated over the superior occipital convolution near the vertex. The fourth was also a multiple growth of the round spindle-celled variety in a colored patient aged 30. The larger tumor, 40 millimeters in diameter, originated in the falx cerebri adja-



cent to the first frontal convolution, the smaller one from the same structure and was situated immediately alongside of the larger. The fifth occurred in a man aged 57, and was a small round-celled sarcoma, 80 millimeters in diameter, originating in the falciform process of the dura over the crista galli.

The insanity in these five cases was of short duration, varying from  $3\frac{1}{2}$  months to  $2\frac{1}{4}$  years, and was apparently due directly to the presence of the neoplasm. The nature of the insanity in all the cases was much the same and was characterized generally by marked depression, suicidal tendencies, delusions of suspicion, and stuporous states passing into dementia.

In addition to the focal symptoms, which varied with the location of the growth, the principal general symptoms observed were epileptiform convulsions coming on in adult life, a dazed feeling in the head, more pronounced at times than at others, with disturbances of equilibrium, progressive weakness of the lower limbs with a tendency for the legs to give way, the patient falling down helpless, general progressive emaciation of the body, and a wild staring expression of the eyes, with slight exophthalmos and occasional nose-bleed—the last mentioned group being due to the intracranial pressure.

The association of cancer and tuberculosis has been a subject of considerable inquiry. In some cases the one or other preceded and instances have been cited where the two processes existed at the same time in the same glandular structure and it was difficult or impossible to determine the primary disease. Cancerous persons have been believed by some to be the survivors of tubercular families. Of the cases cited three of cancer and one of sarcoma were associated with pulmonary tuberculosis. In all the cancer cases tuberculosis existed prior to the development of the cancer. In one case, the father also suffered from phthisis. In the sarcoma case the history was too indefinite to accurately determine the precedence; the indications, however, pointed to the primary existence of the neoplasm.

In three cases cancer developed in the course of paresis. One patient had a definite specific history, but in all paresis antedated from one and one-half to three years the development of the neoplasm.

Three cases of cancer and one of sarcoma presented definite histories of specific disease, although it was highly probable

that this number represented only a small proportion of those actually affected, particularly with reference to the cancer cases. The growth in all, however, appeared several years after the primary infection.

Epilepsy existed in two cases of cancer, and in two cases of sarcoma. In all the cases it preceded the development of the neoplasm by from two to twenty five years.

The association of epilepsy and specific disease existed in one case of cancer and one case of sarcoma. In both, these affections had existed for several years before the development of the neoplasm.

The average age at death of the cancer cases was 48 years, of the sarcoma cases 43 8-9 years. This would seem to indicate that death from cancer occurs at an earlier age in the insane as compared with the population at large. The civil conditions presented a marked contrast; 67.7 per cent of the cancerous cases were single men, whereas 60 per cent of the sarcoma cases were married. Intemperance in the use of alcohol and tobacco was particularly noted in the cases observed, but was a much more prominent feature in those dying from cancer.

The question of heredity has always been considered an important one. This, however, did not assume prominence in the cases observed. In not a single instance was a history of death from cancer or sarcoma in the ancestry obtainable.

It is worthy of note that in those dying of cancer the blonde and brunette types were equally distributed, whereas in the sarcoma cases (with one exception, who was a colored patient), all were of sanguine temperament with light complexions and blue eyes, and mostly of the plethoric type. With one or two exceptions they were strong, active, able-bodied men, and particularly so in all the cases of sarcoma of the brain.

The diseases from which they had previously suffered were those incident to plethora—epilepsy, apoplexy, cardiac disease, articular rheumatism. The same class of diseases was traceable in the ancestry and presented somewhat of a contrast to those encountered in the cancer cases, which were principally phthisis, asthma, syphilis, cirrhosis of the liver and kidneys, arterio-fibrosis and paresis.

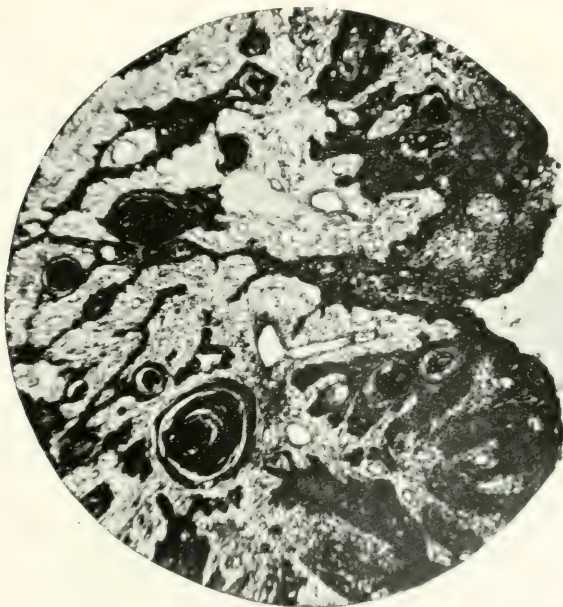
Impressed by the fact that mesoblastic and epiblastic growths appear to bear some relation to the nutritive and secretory ac-

tivities of the organism—the former occurring, as a rule, in middle-aged, active, able-bodied individuals of sanguine temperament at the beginning of a decline in the nutritive functions; the latter occurring later in life when senile changes have begun, and the vigor of the epithelial structures is passing—and especially impressed by the fact that malignant growths run a more rapid course and occur with greater frequency in the insane, who lack inhibitory control, and in the debilitated; and that cancer occurs more frequently in those whose glandular structures are approaching their functional decline, it occurred to me to inquire whether the tissue changes resulting in an overgrowth were not fundamentally conservators of function to compensate for the waning vigor. The cellular-tissue elements are stimulated by toxic juices rich in substances generated by retrograde metabolic changes, and undergo hyperplasia. The energy of this overgrowth is errant by reason of the failing inhibitory control, and, in some instances, is perhaps whipped into activity by local irritations, congestions or inflammations. A development *ad libitum* results and uses up all the remaining nutritive powers of the organism to sustain a wanton effort.

If, therefore, the insane suffering from malignant growths, and who present to such a pre-eminent degree those well-recognized evidences of lost inhibitory control associated with grave metabolic tissue changes, were systematically studied, could we not hope to solve the mystery which thus far has cast its shadow upon the achievements of modern medicine?

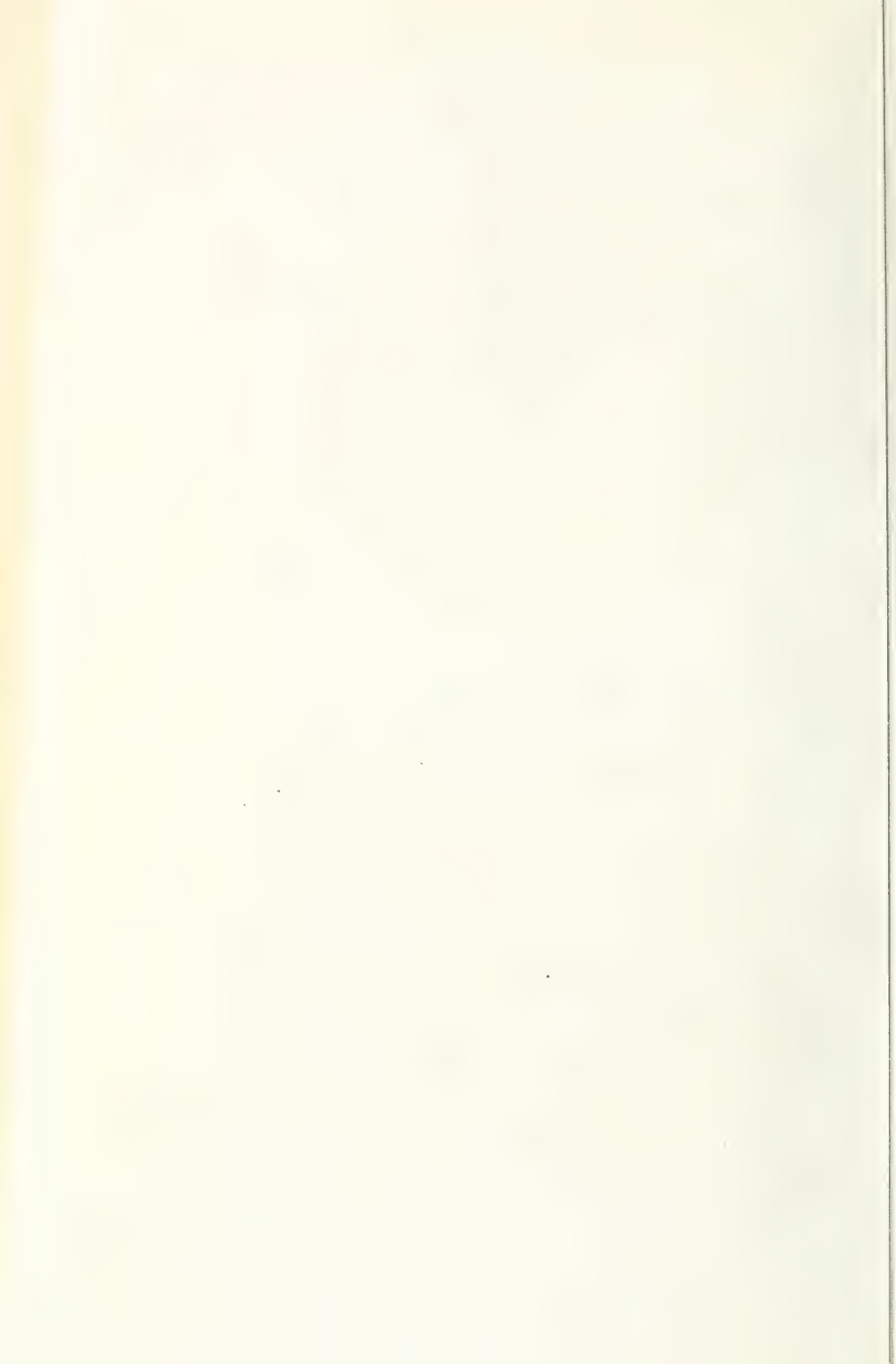


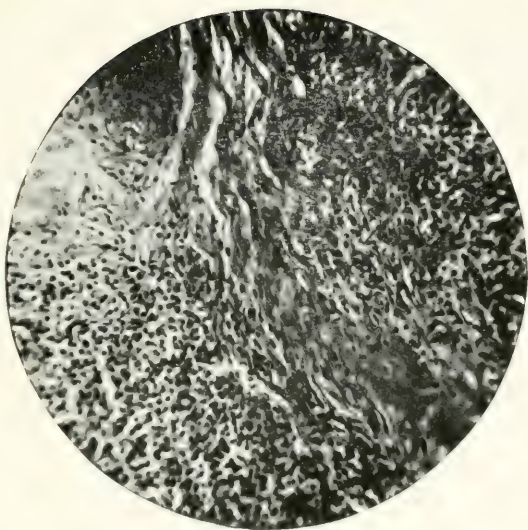
Showing extensive ulceration of the cheek and nose and enlargement of the cervical lymphatic glands in a case of epithelioma of the mucous membrane of the jaw, occurring in a demented epileptic, with definite syphilitic history.



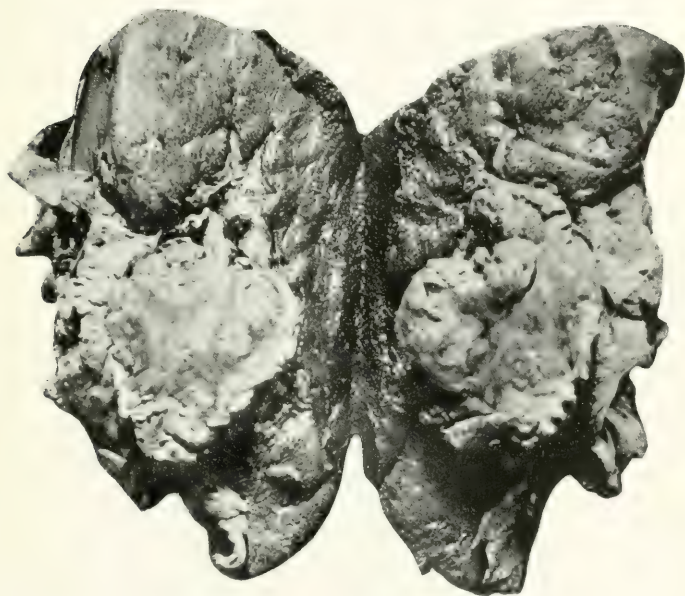
Epithelioma of the Mucous Membrane of the Jaw.



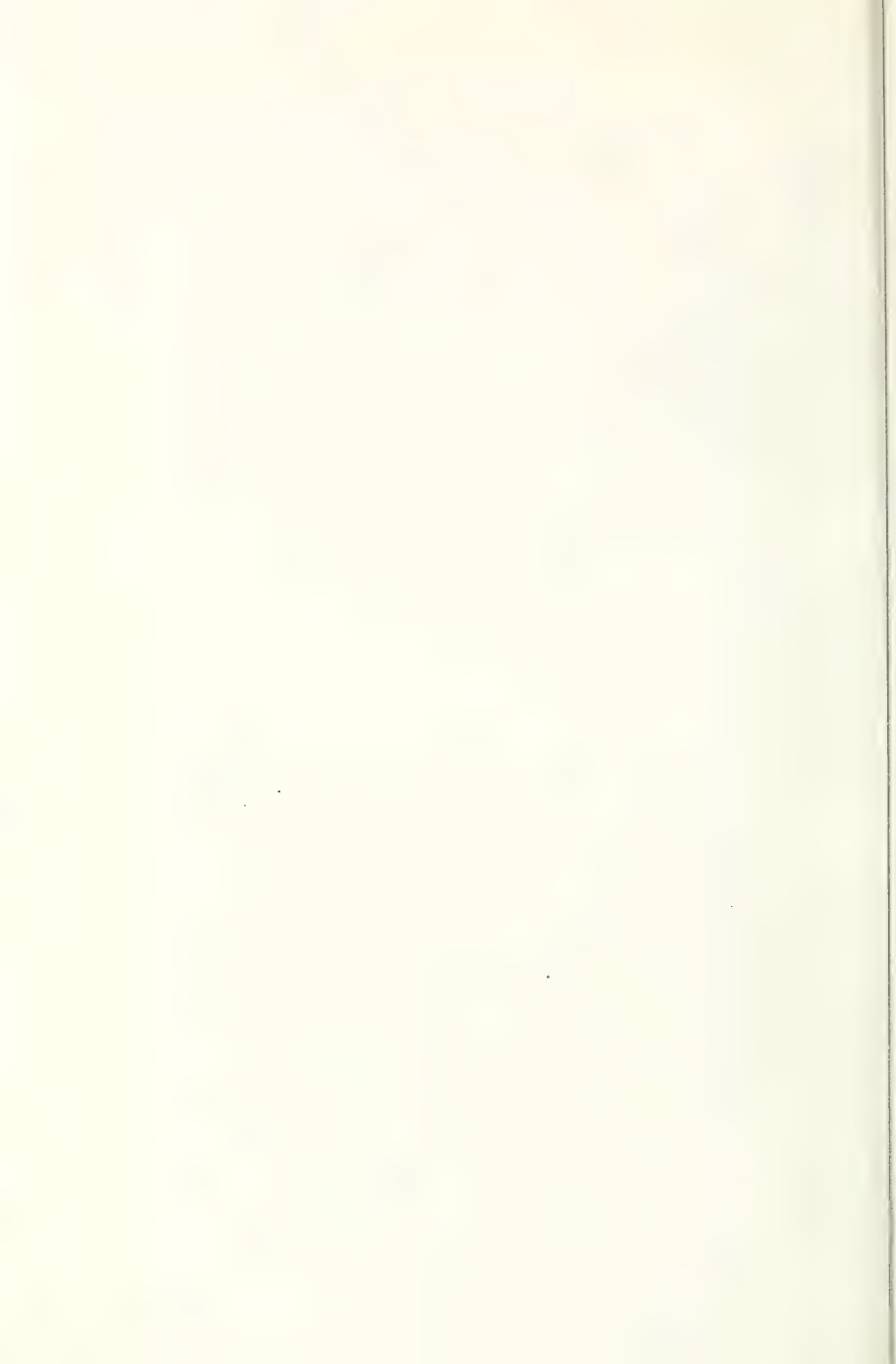




Small Round Celled Sarcoma.

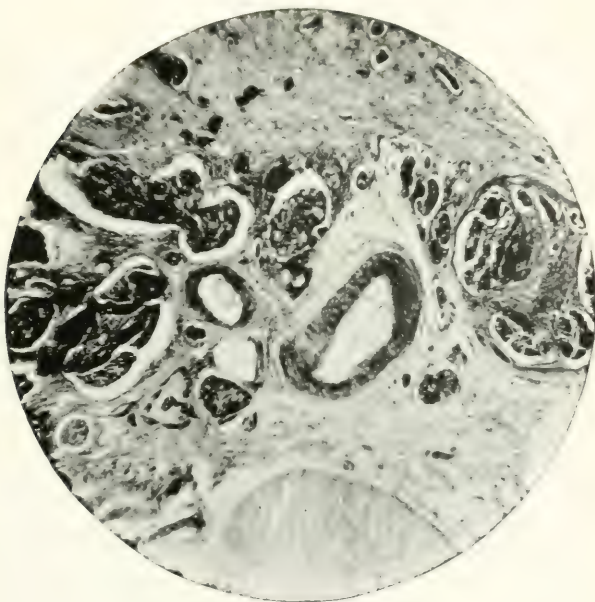


Sarcoma of the Liver.



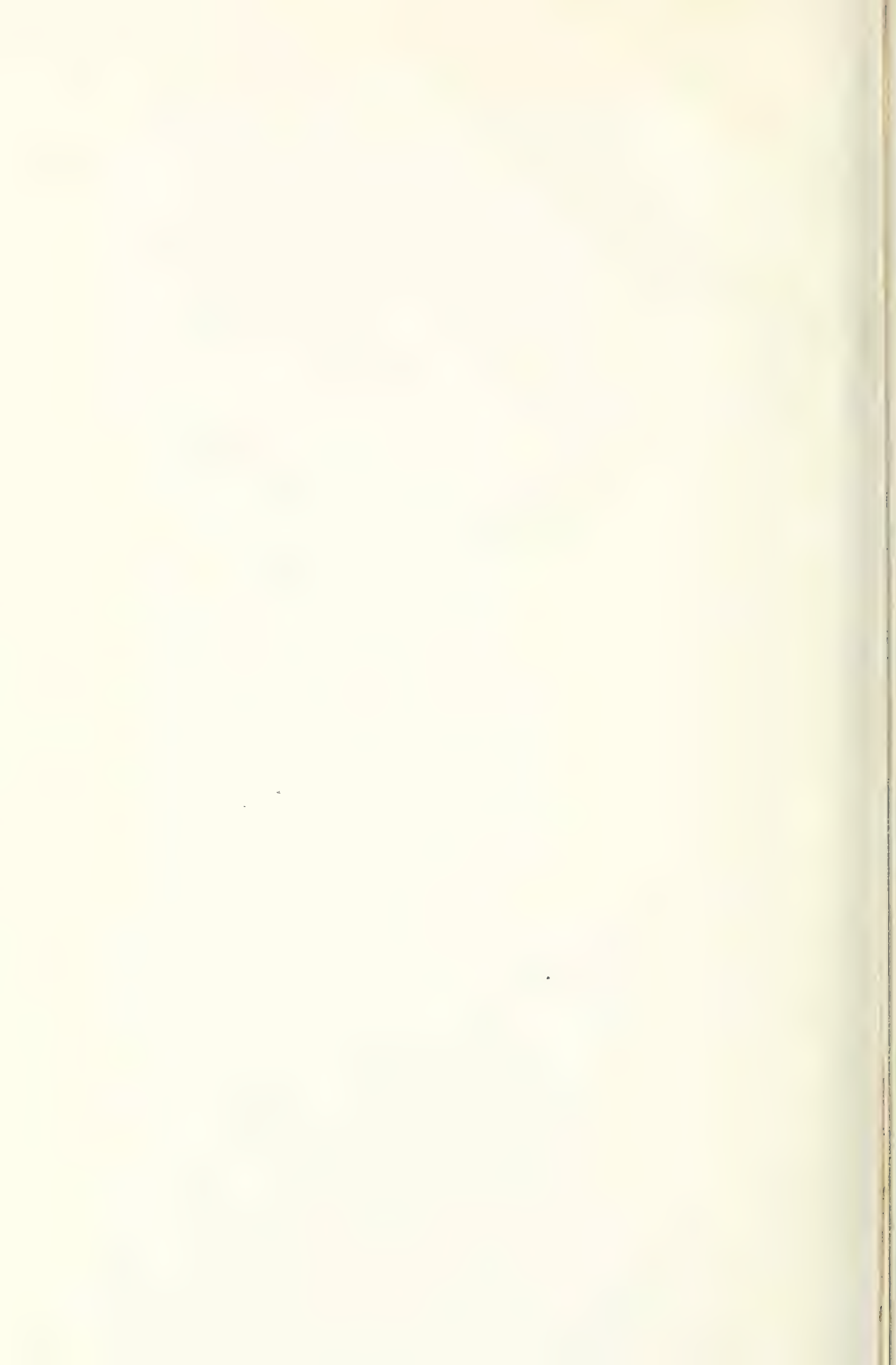


Carcinoma of the Kidney.



Carcinoma of the Stomach.





| Case | Age | Place of birth.                  | Occupation.   | Nature and primary location of growth.     | Primary form of insanity. | Duration of insane life. | Duration of growth prior to death, from first symptoms. | Autopsy notes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------|-----|----------------------------------|---------------|--------------------------------------------|---------------------------|--------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | 32  | England <sup>4, 5, 6, 7, 8</sup> | Laborer ..... | Carcinoma of pancreas.                     | Paresis .....             | Unknown ....             | 4 weeks .....                                           | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2    | 39  | U. S. (colored)                  | Waiter .....  | Epithelioma of mucous membrane of jaw.     | Chronic mania .....       | 18 years .....           | 3 weeks .....                                           | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3    | 45  | U. S. ....                       | Artist .....  | Epithelioma of mucous membrane of jaw.     | Melancholia (Epilepsy)    | 2½ years .....           | 8 months .....                                          | Body extremely emaciated, pale and waxy. Brain soft; membranes adenomatous. Cerebral arteries pale, waxy and thickened. Heart small and atrophied. Liver soft and pulsatious. Kidneys show early stage of parenchymatous nephritis. Temporal muscles of right side completely absorbed. Nothing of scalp left but deep fascia. No fat in body anywhere. General ischemia of organs and tissues. Scarcely any blood in body or organs. Large circular opening in right cheek, about 70 millimeters in diameter, exposing buccal cavity. Buccal and nasal cavities infiltrated with cancerous growth; abscess cavity in right cervical region. Right side of nose ulcerated due to cancerous discharges. Brain not examined. Body extremely emaciated. Congestion and ectasia of lungs. Fatty degeneration of heart. Liver congested. Spleen enlarged and degenerated. Both lungs adherent to pleuric. Old pericarditis and peritonitis. Mesenteric glands enlarged. Tongue and pharynx infiltrated with the cancerous growth. |
| 4    | 48  | Germany .....                    | Unknown ....  | Epithelioma of base of tongue and pharynx. | Unknown .....             | Unknown ....             | Unknown .....                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Case | Age | Place of birth. | Occupation.    | Nature and primary location of growth.     | Primary form of insanity. | Duration of insane life. | Duration of growth prior to death, from first symptoms. | Autopsy notes.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------|-----|-----------------|----------------|--------------------------------------------|---------------------------|--------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5    | 49  | Germany.....    | Merchant. .... | Epithelioma of base of tongue and pharynx. | Acute Melancholia.        | 8½ months....            | 4 months .....                                          | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 6    | 52  | Canada.....     | Draper. ....   | Carcinoma of left orbit.                   | Mania .....               | 6½ weeks.....            | Unknown .....                                           | Brain softened. Pachymeningitis. Sinuses filled. Corpora striata very soft. Choroid plexus disintegrated. Lungs congested. Spleen enlarged. Kidneys cirrhotic. Degeneration of anterior ⅓ of left temporosphenoidal lobe due to contiguity of carcinoma of left orbit.                                                                                                                                                                                      |
| 7    | 62  | Switzerland..   | Druggist.....  | Epithelioma of side of tongue.             | Paresis. ....             | Unknown....              | 4 weeks ...                                             | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 8    | 53  | Ireland.....    | Tailor .....   | Epithelioma of face.                       | Senile Dementia.          | 5 years. ....            | 6 weeks .....                                           | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 9    | 68  | France .....    | Merchant.....  | Epithelioma of face.                       | Senile Dementia.          | 3 years.....             | 5 weeks .....                                           | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 10   | 62  | Italy.....      | Waiter.....    | Epithelioma of penis.                      | Paresis. ....             | Over 3 years..           | 1 month.....                                            | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 11   | 50  | Ireland.....    | Laborer .....  | Epithelioma of penis.                      | Senile Dementia.          | Unknown....              | 4 months.....                                           | Body extremely emaciated, pale and waxy. Brain wet, soft and ischemic. Ventricles filled with blood. Vessels white and transparent. Basilar thickened and fatty. Cortex oedematous, convolutions atrophied and sulci distended. Old pleuritic adhesions to both lungs. Calcareous patches on aortic valves. Kidneys congested. Body very ischemic, scarcely 500 cc. in entire body and most of this in liver. Penis is seat of cancerous cauliflower growth |
| 12   | 75  | Ireland.....    | Laborer .....  | Carcinoma of rectum.                       | Melancholia (Epilepsy).   | 25 years.....            | 1 month .....                                           | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Case | Age | Place of birth. | Occupation.   | Nature and primary location of growth. | Primary form of insanity. | Duration of insane life. | Duration of growth prior to death, from first symptoms. | Autopsy notes.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------|-----|-----------------|---------------|----------------------------------------|---------------------------|--------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13   | 35  | Italy.          | Laborer       | Carcinoma of rectum.                   | Acute Mania               | 2 months.                | 1 month                                                 | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 14   | 40  | Ireland.        | None.         | Carcinoma of rectum.                   | Dementia (Imbecility)     | Life                     | 6 weeks.                                                | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 15   | 30  | U. S.           | Laborer       | Carcinoma of liver                     | Melancholia.              | Unknown                  | Over 2½ mos.                                            | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 16   | 47  | France          | Hotel runner. | Carcinoma of liver.                    | Chronic Mania.            | 20 years                 | 2 months                                                | Body extremely emaciated. Brain presented no macroscopic lesions. Aorta atheromatous. Pleuritic adhesions to left lung at apex and posteriorly. Old cicatrix at apex. Pleuritic adhesions to right lung posteriorly. Spleen enlarged. Patches of atheroma in capsule. Kidneys cirrhotic. Liver hard and contracted and completely infiltrated with the cancerous growth. Section showed numerous abscess cavities filled with pus. No autopsy. |
| 17   | 42  | England.        | Peddler.      | Epithelioma of lower lip.              | Acute Mania               | 4 weeks.                 | 4 weeks.                                                | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 18   | 54  | Ireland.        | Carpenter     | Epithelioma of lower lip.              | Melancholia.              | 5 years.                 | 4 years.                                                | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 19   | 20  | U. S. (colored) | None.         | Carcinoma of stomach.                  | Acute Mania               | Unknown                  | 3 weeks.                                                | Brain soft. Membranes thickened and congested. Left lung adherent to pleura. Stomach, liver and peritoneum infiltrated with the cancerous growth. No autopsy.                                                                                                                                                                                                                                                                                  |
| 20   | 60  | Germany.        | Baker         | Carcinoma of stomach.                  | Senile Dementia           | Many years (indefinite). | 4 weeks.                                                | Brain not examined. Lungs tubercular. Retroperitoneal glands enlarged. Scirrhus carcinoma surrounding cardiac orifice of stomach extending up the esophagus about one inch, and extending down on stomach two inches, principally along lesser curvature.                                                                                                                                                                                      |
| 21   | 61  | Germany.        | Driver        | Carcinoma of stomach.                  | Acute Melancholia.        | 5 weeks.                 | 5 weeks.                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                |



| Case | Age | Place of birth. | Occupation.    | Nature and primary location of growth. | Primary form of insanity. | Duration of insane life. | Duration of growth prior to death from first symptoms. | Autopsy notes.                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------|-----|-----------------|----------------|----------------------------------------|---------------------------|--------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22   | 42  | Ireland.....    | Groom.....     | Carcinoma of stomach.                  | Chronic Melancholia.      | 2 years.....             | 3 months.....                                          | Brain not examined. Body extremely emaciated. Calcareous degeneration of aortic valves. Mesenteric glands enlarged. Carcinoma involving pyloric end of stomach, duodenum, liver, both kidneys, pancreas and adjacent structures all bound down to vertebral column in one hard, unyielding mass.                                                                                                                                           |
| 23   | 68  | Ireland.....    | Cooper. ....   | Sarcoma of left breast.                | Melancholia.....          | 20½ years.....           | Many years (indefinite).                               | Brain not examined. Lungs tubercular. Fatty degeneration of heart muscle. Both kidneys showed chronic parenchymatous nephritis. Sarcoma nearly the size of a man's head upon the left side of breast involving the intercostal muscles and tissues down to the sternum and ribs. The neoplasm was very hard and presented an area of degeneration.                                                                                         |
| 24   | 47  | Ireland....     | Salesman....   | Sarcoma of right shoulder.             | Chronic Mania (Epilepsy). | 7½ years.....            | 3½ years.....                                          | No autopsy.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 25   | 24  | U. S.....       | Electrician... | Sarcoma of liver.                      | Acute Mania....           | 4 years... ..            | 4 months.....                                          | Body intensely jaundiced, weight 105 lbs. Beginning pachymeningitis on internal surface of dura in temporal fossae. Choroid plexus cystic. No fluid in ventricles or meninges. Brain convolutions well formed. Vessels not atheromatous. Heart muscle soft, valves and aorta normal. Spleen enlarged and congested. Kidneys congested. Peritoneal cavity contained 2160 cubic centimeters of bile-stained fluid. Weight of liver 2255 gms. |

| Case | Age | Place of birth. | Occupation.   | Nature and primary location of growth. | Primary form of insanity. | Duration of insane life. | Duration of growth prior to death, from first symptoms. | Autopsy notes.                                                                                                                                                                                                                                                                                                                                                          |
|------|-----|-----------------|---------------|----------------------------------------|---------------------------|--------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |     |                 |               |                                        |                           |                          |                                                         | There was a large sarcoma (encapsulated) growing from the great fissure about the gall-duets, and originating in the connective tissues; it had not undergone degeneration. Weight of neoplasm disencapsulated, 300 gms., extremely vascular and softened about borders.                                                                                                |
| 25   | 44  | Ireland. ....   | Laborer ..... | Sarcoma of left knee.                  | Mania (Epilepsy).         | Over 9 years..           | Over 9 years..                                          | No autopsy.                                                                                                                                                                                                                                                                                                                                                             |
| 27   | 40  | U. S. ....      | Laborer ..... | Sarcoma of brain.                      | Acute Melancholia.        | 9 months.....            | Unknown.....                                            | Body that of an able-bodied man, somewhat emaciated. Brain membranes congested. Sinuses filled with blood. Brain softened. Small, round-celled sarcoma originating in dura mater over the sella turcica. Beginning atheroma of aorta and pulmonary arteries. Kidneys congested.                                                                                         |
| 28   | 51  | Ireland. ....   | Ship Caulker. | Sarcoma of brain.                      | Acute Melancholia.        | 6 months.....            | Unknown.....                                            | Body that of an able-bodied man, somewhat emaciated. Brain membranes congested. Sinuses filled with blood. Brain softened, markedly so in region of tumor. Sarcoma 38 millimeters in diameter originating in the falx cerebri adjacent to the parietal lobe. Surface of convolutions flattened and showed evidences of pressure. Lungs cedematous; other organs normal. |
| 29   | 34  | Germany. ....   | Baker .....   | Sarcoma of brain.                      | Acute Melancholia.        | 1 year .....             | Unknown.....                                            | Body that of an able-bodied man, somewhat emaciated. Brain membranes congested. Con-                                                                                                                                                                                                                                                                                    |

| Case | Age | Place of birth.  | Occupation.  | Nature and primary location of growth. | Primary form of insanity. | Duration of insane life. | Duration of growth prior to death, from first symptoms. | Autopsy notes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------|-----|------------------|--------------|----------------------------------------|---------------------------|--------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30   | 30  | U. S. (colored). | Porter.....  | Sarcoma of brain.                      | Acute Melancholia.        | 3½ months....            | 3½ months.....                                          | <p>Multiple fibrosarcoma of the dura; the larger 38 millimeters in diameter situated adjacent to the left sylvian fissure; the smaller 12 millimeters in diameter situated over the superior occipital convolution near the vertex. Brain structures softened about region of tumor. Other organs apparently normal.</p> <p>Body that of an able-bodied man, somewhat emaciated. Multiple round spindle-celled sarcoma of the dura; the larger 40 millimeters in diameter; originating in the falx cerebri adjacent to the first frontal convolution. The smaller one from the same structure situated immediately alongside of the larger. Brain structures softened about region of tumor. Other organs apparently normal.</p> |
| 31   | 57  | Germany.....     | Tailor ..... | Sarcoma of brain.                      | Acute Melancholia.        | 2¼ years.....            | 11 years.....                                           | <p>Body that of an able-bodied man, somewhat emaciated. Brain convolutions flattened from intracranial pressure. Membranes congested. Small, round-celled sarcoma of the dura, 80 millimeters in diameter originating in the falciform process of the dura over the crista galli. Tumor undergoing degeneration near its attachment to falciform process. Heart muscle soft. Atheroma of thoracic and abdominal aorta.</p>                                                                                                                                                                                                                                                                                                       |

## A REPORT OF A CASE OF MYOCLONUS EPILEPSY.

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“The term ‘epilepsy’ is applied to groups of symptoms, and to diseases which anatomically and pathologically are extremely disparate. In fact, at the present day, it should not be given any anatomical significance whatever. To show the difficulty of conveying in a few words an adequate idea of the disorders indicated by the term ‘epilepsy’ the reader is reminded that a large portion of all cases of dual personality are manifestations of epilepsy; that most cases of ‘dreamy states’ of consciousness are in reality evidences of the epileptic neurosis; that cortical irritation—whether it be due to growth in the substance of the cortex or to pressure from without—is manifested by the phenomena of epilepsy; and finally that the large class of cases which were designated as general and essential epilepsy—meaning thereby a profound neurosis, whose most conspicuous symptom is an eclamptic or convulsive attack—are all included under this one head.”

This excerpt from Collins<sup>1</sup> is significant of the fact that the syndrome we term “epilepsy” is truly a symptom-complex.

Motor disturbances in the inter-paroxysmal state of an epileptic are not uncommon, and it is not surprising that it has been found that “myoclonus” is seen in epilepsy, either alone or associated with the seizures. The excellent and complete paper by L. Pierce Clark and T. P. Prout<sup>2</sup> on “The Nature and Pathology of Myoclonus Epilepsy” leaves but little to be said concerning the disease. The authors establish quite clearly the fact that the association of the two symptoms (epilepsy and myoclonus), although rare, is sometimes seen; and that this association gives rise to a characteristic syndrome. As has been stated above, many epileptics show an inter-paroxysmal motor



disturbance, and it is possible that in some of these cases the condition might have been a myoclonus, but, owing to the rarity of the disease, it may have been overlooked.

Before reporting the case which forms the subject matter of this paper, I desire to report three cases, which should be placed in the group of "myoclonic disturbances in epilepsy."

CASE 1.—J. E. (author's case); male; aged 32. Admitted to the Eastern Michigan Asylum October 14, 1902. No history of his life previous to admission could be obtained. The patient's mental symptoms corresponded to those of mental enfeeblement, and the syndrome was not suggestive of an epileptic psychosis. Auditory hallucinations of a persecutory type were in evidence. Optimism, however, was quite constant, although changes in the emotional tone were occasionally seen.

On November 27, 1902, the patient had a convulsion of the "grand-mal" type, followed by stupor. On December 5 of the same year he had one severe and one light seizure, of a classical type, followed by a degree of confusion. On December 11, 1902, following a period of 48 hours of irritability and religious enthusiasm, clonic spasms involving the muscles of the legs, arm, trunk and face developed, continuing for four hours without obscuration of consciousness. The patient had no control over the spasms, could talk quite coherently about his condition, and complained of pain extending over the convulsed area. During the attack exaltation of the tendon reflexes was noted, and any attempt to elicit the same caused a marked increase in the severity of the convulsions. On two occasions since then patient has had a repetition of the attack. On another occasion the myoclonic symptoms developed after a severe and typical epileptic seizure.

Since his commitment—that is, previous to May 8, 1903—the patient has had nine seizures of the "grand-mal" type without myoclonic symptoms; one attack of myoclonus alone; two attacks when the myoclonus preceded, and one when the symptoms followed a severe epileptic attack. The myoclonic convulsions were in all instances of the same nature and involved the same area, with a maximum duration of four hours.

The above case shows that myoclonus may occur as a pre- or post-epileptic phenomenon, or may develop instead of the classical attack.

CASE 2.—S. W. R.; male; age 30. Admitted to the Eastern Michigan Asylum March 22, 1886.

*Hereditary History.*—Father was “peculiar” and died of a cancer. One brother was an “epileptic imbecile.”

*Previous History.*—History of epilepsy dates from childhood. Attacks have been of the “grand-mal” type, the mental equivalents consisting of amnesia and automatism occurring several times.

At the time of his admission to the hospital no localized physical trouble was found. The general nutrition was somewhat disordered, as found in cases of prolonged and aggravated epilepsy, and characteristic dementia was well advanced. A few severe convulsions of the “grand-mal” type occurred during the first six weeks of residence at the asylum. In April, 1886, it was noted that the patient had on several occasions suffered from irregular epileptic attacks. He located the trouble in the neck and at the root of the tongue. It was ushered in by a “burning sensation,” which was soon followed by the occurrence of a “convulsion.” This consisted of an attack of hicough, which occurred at intervals of a minute or so. During the attack, the tongue was protruded violently from the mouth, which was at the time thrown open. This was accompanied by “explosive” crying. Simultaneously with this, the head was thrown backward by a sudden contraction of the muscles of the back and head. He did not lose consciousness during the attack, but was able to converse and to describe his feelings during the intervals. One such an attack was ushered in by an application to the mucous membrane of the nose of a solution for the relief of a catarrhal condition. These attacks continued to occur at intervals, but marked improvement was obtained by the use of bromides. Attacks of petit- and grand-mal developed independently of myoclonic symptoms. The patient succumbed to pneumonia, occurring after ordinary status epilepticus, during May, 1894. For the three years preceding death, no note is found of the occurrence of any myoclonic symptoms.

This case shows that myoclonic symptoms develop in idiopathic epilepsy late in the existence of the disease, and can be regarded as a variation in the type of the convulsion.

CASE 3.—E. D.; male; age 9. Admitted to the Eastern Michigan Asylum August 7, 1883.

*Previous History.*—Has had epilepsy since 18 months of age. No history could be obtained as to the probable cause of the disease, or the characteristics of the attacks. The examination on admission showed some disorder of nutrition; but there was no evidence of any bodily defect. The mental symptoms corresponded to those of imbecility. Mental reduction, however, was not extreme. On the day of admission the patient had sixteen seizures, during which he became confused and would grind his teeth. No convulsive movements were noted, and there was no loss of consciousness. A month after admission, a note is made to the effect that he had had upwards of 100 seizures, during which there was no loss of consciousness, and the usual epileptic phenomena were not in evidence. The flexor muscles of the arms and legs during the attacks were in a state of clonic spasm, and were the only ones affected. During May, 1884, according to the report, the convulsions had grown more severe in character; and, owing to violence of the contractures, he had often been thrown down, striking the back of his head. On one occasion a large hematoma involving the entire occiput had developed. Seizures of the character mentioned above alternated with the classical seizures of epilepsy.

In 1889, there is a description of an attack,<sup>3</sup> with the following symptoms:

“For a period of six or eight hours the legs and arms were in almost constant motion. He had no power to control his movements. Generally an arm or leg would be picked up and apparently thrown aimlessly about the bed. The patient would clench his hands, and strike his face or strike the wall forcibly. These symptoms continued for eight hours, during which time there was no loss of consciousness.”

A note made in March, 1890, would indicate the occurrence of a dermatosis after the convulsion. This condition was one of erythema, which often appeared after the attacks, involving both hands. It was sometimes observed on the face, and occasionally involved the ears. It is also reported at this time that peripheral irritation on several occasions precipitated an attack.

In February, 1892, according to the records made during the previous year the patient had been in bed, owing to progressive asthenia in consequence of attacks. Many seizures of the

“grand-mal” type now occurred, and the frequency of the myoclonic spasms appeared to be considerably lessened.

As showing the frequency of the attacks during the three years, the following report is made: During 1890 the monthly average of convulsions was 278; in 1891 it was 246; and in 1892 it was 183. From this time until his death, in September, 1893, the patient was bed-ridden, and there was emaciation, which was due to the progressive exhaustion in consequence of the frequency and severity of the attacks.

There can be no question that in this case we have an anomalous case of epilepsy. The case was probably one of “myoclonus epilepsy,” which was at that time not recognized. The occurrence of the “myoclonic” attacks independently of the typical epileptic seizures—the two alternating with varying frequency—is convincing of the fact that the two syndromes may occur independently and may have the same source of origin.

CASE 4. A. P. (writer's case); male; age 20; single; American. Admitted to the Eastern Michigan Asylum February 7, 1902.

*Hereditary History.*—There is apparently a defect, although this is evidenced mainly in a family neurotic tendency on the maternal side. The mother is considered “nervous;” one brother is a pugilist, one a vaudeville performer and another a professional ball-player. All the children have some vagaries of conduct and indecision in manner.

*Previous History.*—The patient is no exception to the rule. At an early age he showed the family characteristics and also exhibited criminal tendencies. At the age of 14, in a spirit of bravado, he drank almost a pint of cheap whiskey, and had an attack of severe, acute gastritis; and after 72 hours of persistent vomiting, he experienced an attack of myoclonus, involving the muscles of the legs. The attack is described as a series of “clonic spasms,” continuing for two days. The legs were thrown violently about and the patient had no control over his movements. There was perfect retention of consciousness and no mental clouding. After the attack he continued to drink to excess, and three months afterwards experienced a classical epileptic seizure.

During the first year of his illness, myoclonic spasms of the original character developed about once a month. Grand-mal



attacks occurred about once every six weeks and were of the usual type. At the beginning of the second year the patient noticed that the myoclonus involved the arms, and in a short time the muscles of the face and back were also involved in spasms. The attack occurred without any apparent exciting cause, and while it lasted the patient was totally incapacitated. During the first two years he continued to drink, was frequently intoxicated, and had several attacks of delirium tremens. Several times he was arrested for drunkenness and vagrancy, and committed to penal institutions, where he has served specified terms. He was then committed to the Home for Feeble-Minded, and, on February 7, 1902, was transferred to the Eastern Michigan Asylum.

At the time of transfer it was stated that during the past six months attacks of grand-mal type and clonic symptoms had occurred quite frequently—the patient being free from clonic spasms only a few days during the week.

Examination at the time of admission showed a marked disorder of equilibration and gait. Owing to the violence of the spasms in the leg muscles, he would at times be thrown violently to the floor. The area involved included muscles of the arm, neck, face and abdomen. Owing to spasms of the masseters, even the speech was occasionally jerky, but the laryngeal muscles did not seem to be involved. The muscular contractures were short and lightning like, but not symmetrical. The tendon, organic and superficial reflexes were markedly exaggerated, and any attempt to evoke the same resulted in spasms. The patient complained of weakness, due to the violence of the spasms. Physical signs of degeneration consisting of cranial, facial and palatal deformities were found. Examinations of respiratory, circulatory, digestive and abdominal organs were of negative value. The mental symptoms were those of an original defect. There were moral insensibility, an inordinate vanity, an ill-balanced impulsiveness and an inferior intelligence.

The patient has been under observation for fifteen months, and during that time he has had numerous attacks of myoclonic spasms, and twenty-five seizures of the grand-mal type. These attacks have occurred independently, and have never been found associated. Status myoclonus has developed twice, and on both

occasions symptoms of exhaustion have appeared, but have not been of serious import.

The patient is at times apparently free from myoclonic spasms, and a marked subsidence has been frequently produced by the judicious use of bromides. During the remission, the patient, having some talent for drawing, is able to execute this with ease. He has also written many letters, and no irregularity has been noted in the character of his penmanship. During the "bad days," when the myoclonus is present, the patient frequently falls, and has sustained, in this way, many cuts and bruises. When spasms are extreme, it is necessary to keep the patient in bed, in order to prevent serious injuries. The patient states that he is never entirely free from spasms, as often when he appears to be quiet and when no convulsion can be observed, he is conscious of fibrillary contractions of the muscles.

The character of the myoclonic spasms has undergone no change since the patient has been under observation. The contraction of the muscles is strong, and a large number of the muscles are involved, both sides of the body being affected. No regularity in the order of the contractions of the muscles has been noted. The leg, arm, face and back muscles are affected in irregular order. During an attack, any emotion or mechanical irritation causes a decided aggravation of the symptoms.

The following are the interesting points in the case:

(1) The appearance of the myoclonus before the classical epilepsy.

(2) The relation of the ingestion of alcohol to the development of the myoclonus.

(3) The development of the classical epilepsy three months after the initial myoclonic attack.

(4) The benefit that is rapidly produced by the adoption of the bromide treatment.

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<sup>1</sup> The Treatment of Diseases of the Nervous System, by Joseph Collins, p. 441.

<sup>2</sup> American Journal of Insanity, Vol. 59.

<sup>3</sup> Description of attacks obtained from the records by Dr. E. A. Christian.

## DISCUSSION.

DR. RIGGS: I have been deeply interested in the paper which has just been read, for the subject in itself is one of the greatest interest. Epilepsy, of course, must be differentiated from epileptiform conditions and they are multiform. I should regard this myoclonic condition as nothing more or less than a simple, disruptive discharge, and as purely epileptic as the sensory attack or the primary attack itself. Epilepsy as you all know, because you are familiar with it, has such a variety of manifestations, frequently so atypical, and many times so far-reaching in its effects that it seems that a discussion of this subject and this extremely interesting case is most apropos.

You have all been impressed this year with the uncommon number of railroad accidents. And we have probably asked ourselves: How does this occur? Is it because of unusual carelessness or neglect upon the part of the officials of these roads, or is there some other explanation for it? I feel quite sure that many of the cases of horrible accidents are cases in which the engineer or those who had the trainload of people in their hands and their lives under their care, were, probably, subject to epilepsy, more likely of the minor variety. You can readily see under such circumstances that a proper warning or a properly displayed light may have been observed and the proper precaution was going to be taken when all at once one of these temporary seizures has overcome one man, and as a consequence thereof there have been agony and suffering and death for many people. I think that as physicians we have not paid enough attention to this phase of our work, and that the profession, to say nothing of the public, has not given it due consideration.

Further, I have no doubt but that many of the cases of alleged 'double consciousness' are manifestations of epilepsy. There is no question that many of these cases of sudden and abrupt disappearance of individuals who had been before entirely above reproach must be explained in this way.

I had a man under my care who was subject to these epileptiform attacks. He would be taken with a seizure at night and not know what had happened to him until he came to himself two or three days afterward in another town perhaps. The startling fact was that he would make his dis-counts, write his letters to his firm, collect his money and sell his goods, and the firm had never noticed anything wrong. Now as far as treatment in such a case is concerned, it would be essentially the treatment of epilepsy.

I say I am not pessimistic with reference to the handling of cases of idiopathic epilepsy. I am well aware of the obstinate neurosis with which we have to deal, but I have had some remarkable experiences where proper therapeutic and above all proper hygienic treatment persistently applied have produced some very remarkable results. I thank you. (Applause.)

## PARANOID DEMENTIA.

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In this paper, the title "Paranoid Dementia" is used as synonymous with Dementia Præcox, Paranoid Form.

The term "paranoia" has come to be accepted as one eminently appropriate for designating a clearly defined psychosis, a mental disease gradual in its onset, chronic in its manifestations, and characterized especially by systematized delusions with slight, if any, mental deterioration.

Irritating hallucinations and delusions of persecution are also prominent symptoms of this form of insanity; in fact, they form so constant and pronounced a feature in paranoia, that when conspicuously present, by some writers and statisticians they are regarded as sufficiently distinctive to settle the question of classification irrespective of any accompanying mental deterioration more or less evident. It seems necessary, therefore, to differentiate between paranoia and paranoid symptoms.

If mental deterioration, however slowly advancing in a given case, is not held as sufficient to exclude it from ranking as paranoia, no precise margin to this class can be established and it must be made to include a wide variety of cases presenting persecutory delusions, conforming to all grades of insane logic, from those elaborately systematized to others lacking all semblance of cohesion; and, also, varying grades of mental impairment, from those in which deterioration is barely discoverable to others where it is pronounced and rapidly progressive.

From medical papers and hospital records, the impression is obtained that, among hospital officials especially, there is a lack of uniformity in the conceptions of what should constitute the symptom-group of paranoia, which leads to more or less confusion in the literature of morbid psychology. A solution of



the difficulties met with in classifying paranoid conditions, in conformity with easily recognized standards, should be welcomed by all alienists.

The requisite formulas for this work are provided in Kræpelin's system of classification. Kræpelin regards as examples of pure paranoia only those infrequent chronic cases which present systematized delusions of persecution with long deferred deterioration; while he classes all other cases exhibiting paranoid symptoms—those with hallucinations and delusions of a persecutory bearing and rapid development, changing, disassociated or fully systematized as it may be, but in all of which a process of dementia is manifest or can be confidently predicted at an early stage, as paranoid forms of dementia præcox.

Dementia præcox, thus used as a class or type-name, is very expressive and seems to be the most satisfactory one so far suggested to designate this deterioration process. While it may appear to some as more appropriately applied to young subjects, its usage never seems inconsistent, even when referring to middle-aged patients, by those who regard the term in its broad and true sense.

The number of cases, having as common symptoms numerous hallucinations and somatic delusions with the inevitable dementia, is large and consequently includes those widely varying as to the early or late appearance of mental reduction as well as to the rapidity with which the deterioration process advances. Consequently, the qualifying term "paranoid forms" is appropriately subdivided into two groups. Thus, the term dementia præcox, paranoid form, becomes sufficiently broad in its application to include not only the cases formerly classed by Kræpelin under the more restricted terms, dementia paranoides and fantastic paranoia, but a large number of cases classed by others as primary dementia, mania, melancholia, paranoia, etc.

The first group of the paranoid form includes such cases as present absurd, changing, non-systematized delusions of persecution and grandeur. A gradual onset covering weeks is the rule, but when active mental disturbance sets in, auditory hallucinations and delusions of persecution quickly develop. Some degree of mental enfeeblement can be detected early in the course of the psychosis, which terminates in advanced dementia, generally within two or three years.

The second group embraces a class of cases in which mental decay is less pronounced and less rapid in its progress and where delusions more or less coherent and systematized are entertained. Hallucinations, especially of hearing, are misinterpreted. Somatic illusions, or delusions, are referred to imaginary agencies, or supposed enemies. Occasionally, delusions of grandeur are exhibited and frequently the delusions are ridiculously absurd and marvelously whimsical. Some patients coin words to characterize their illusory sensations. It is not unusual for patients in this group to show "method in their madness" and with some approach to logic, defend for a time their false notions, since mental deterioration advances but slowly. Yet eventually, after a term of years, few or many, they become so far demented that their delusions vanish, or fade out of prominence and cease to be actuating motives for conduct.

A tabulation and analysis of all the cases of paranoid dementia admitted to the Connecticut Hospital for the Insane for a period of nearly three years from October 1, 1898, to July 1, 1901, were made to demonstrate the clinical advantages arising from the adoption of this method of classification.

In the period specified—33 months, 1210 cases of insanity were admitted. The diagnosis recorded in 56 of these cases was dementia præcox, paranoid form. Twenty-one cases were assigned to the first and 35 to the second group. Hereditary predisposition was admitted in regard to only 16 cases and was positively denied in 24; while the facts necessary to determine this question could not be obtained in the histories of the remaining 16. It is extremely probable that faulty heredity was a factor in a much larger number of these cases, as the facts which go to establish such conditions are often overlooked or intentionally repudiated by relatives.

The onset of the disease was described as sudden in only four cases. In the other 52, the usual prodromes had been manifested for periods varying from a few months to many years.

The average duration of the disease before admission (both groups included) was above three years. The evident hesitancy on the part of interested friends to place patients belonging to the second group of paranoid dementia under institution restraint at an early period in the development of their insanity, is accounted for by the gradual approach and mild character of

the disease in its incipient stage. Almost invariably, the prodromal history was one of depression and vague feelings of unrest and anxiety. Headache and insomnia were frequent symptoms. The patients were suspicious, as a rule, and sooner or later characteristic auditory hallucinations appeared, affecting the mental attitude and in some measure suggesting conduct.

In only two out of the 56 cases was there no record of auditory hallucinations. In one of these cases, the onset antedated the first admission to the hospital by at least 15 years, and the early manifestations may have faded from the recollections of family or friends, or even escaped their untrained powers of observation. This patient retained her old persecutory delusions while she expressed the conviction that she was endowed with superhuman qualities.

The second case, in which auditory hallucinations seemed to be absent, was one of nine years' duration. For seven years this patient had been an inmate of the Connecticut Hospital, and no record of hallucinations in the case could be found. When originally committed, this case was classed as a paranoia. But, on readmission to the hospital after a few months' absence, the advancing degree of mental deterioration exhibited at the staff meeting examination relegated it to the second group—the paranoid form of dementia præcox.

A positive diagnosis of paranoid dementia cannot be made in the earlier stages of mental disorder in the absence of evident auditory hallucinations. Such hallucinations, though changing in some respects, are persistently present to worry or disturb the patient. Imaginary voices accuse, malign, or threaten throughout the early stages of the fully developed psychosis. Sometimes at a comparatively early and often at a later period, they flatter the victim and serve to buoy up delusions of wealth or importance. As a rule, auditory hallucinations in these cases subside in time and eventually become of slight moment.

Accompanying auditory hallucinations, there are active and absorbing delusions of persecution. Such delusions are many-phased as a rule, expressing the patient's disordered views of his environment in terms which are frequently absurd in the extreme. In short, a wealth of delusions is to be expected in cases representing this class of mental diseases. These delusions are feebly held, and are, therefore, changeable and inco-

herent in cases of the first group; while, in those belonging to the second group, they present some degree of coherence, bear some relation to, or some connection with, a central, master delusion, thereby constituting a feeble or circumscribed system which the patient adheres to for a number of years.

The abundant delusions, as well as the expressive language, fitly characterized as "fantastic" which the patient sometimes uses to describe his conceptions of personal experience or sufferings, result from the fact that his intellectual endowment is not completely overwhelmed at first. Meantime, the patient, harassed by threatening delusions and spellbound by exasperating hallucinations, views experience from a new standpoint and cannot depend upon his judgment to correct false impressions. The memory is not extinguished and the imagination has free scope and license. Hence, certain patients often invent words and terms to portray their fancied unique experiences. Perhaps this explanation also applies to the somatic delusions which are very common in cases of paranoid dementia. Forty-two of the fifty-six cases presented this symptom. One felt a "sharp jab" in his leg, and immediately his trousers would "fly out." He attributed this sensation to electricity, saying he supposed it to be scientific treatment. Another claimed that a powerful blower was inserted in one ear, thus blowing out his brains on the opposite side. Another said his physician at home cut his throat and pushed a snake into his stomach through the wound. One was influenced by some mysterious power, like electricity or magnetism, and often arrested the movements of his head stock-still to "jar off the influence." One woman imagined she had a machine in her body working to arrest the process of breathing. Another insisted that various parts of her body had been removed and that corresponding parts of another person had been put in the place of those removed.

Women appear less inclined to charge their imaginary enemies with the improper and absurd application of scientific agents, but rather complain of vague indefinite symptoms of disease, or the removal of internal organs; and their delusions are quite frequently referred to the sexual organs.

Some patients suffering from paranoid dementia react to their persecutory delusions without warning. Out of the 56 cases embraced in this study, one threatened, and six attempted, sui-



cide to escape from imaginary tortures and fifteen committed such acts of violence toward others that each was for a time regarded as dangerous.

But granted that auditory hallucinations and delusions of persecution are the most conspicuous symptoms of paranoid dementia, there is another and a decidedly more essential feature of this disease, which must be associated with delusions and hallucinations in order to complete and typify the symptom-complex, and thus gauge at their correct value, the active manifestations of insanity, adjusting each to its relative importance in a comprehensive view of the psychosis. This denominating feature is the underlying chronic process of advancing enfeeblement or dementia.

The determination of the existence or non-existence of an underlying advancing process of mental deterioration in ordinary cases of insanity, is the key-note to Kræpelin's theories of mental disease and its classification. Hence, it becomes important to establish as early as possible the facts with regard to mental deterioration in a given case.

Since persecutory delusions with hallucinations appear in other forms of mental disease, a careful differentiation must be instituted in all cases.

In pure paranoia, there will be a more gradual onset with an absence of the emotional depressive prodromes which usher in paranoid dementia. There will also be but few and unimportant hallucinations. The delusions will not crop out suddenly, but gradually develop on constitutional lines, in a person originally ill-balanced, forming some association or system with previously strained ideation. The memory will remain keen, and new experiences, even if misjudged, will gain access to the mind.

In the depressive form of manic-depressive insanity, the onset will be much more sudden. Mental action will be retarded; consciousness will be more or less clouded in the early stages, and there will be poverty of speech instead of fantastic versions of disordered sensations.

In melancholia, the age and condition of involution must coincide; hallucinations will be inconspicuous, and self-accusations will be noted.

The hallucinations and delusions incident to alcoholic cases can be identified by their character and the intemperate habits of the patient.

The beauty as well as the utility of the Krapelin classification appears in reducing to their proper relations exciting causes, emotional disturbances and episodes in the history of a case, each to its proportionate importance. Paranoid dementia is predicated not alone upon such symptoms but upon these manifestations, plus the evidence of mental deterioration; which once definitely established, may be depended upon to advance, although at varying rates of progress.

As a rule, a correct diagnosis of paranoid dementia can be made upon the first admission of such a patient to the hospital. And, when once correctly made and recorded, it will stand for all subsequent developments in the case, as it clearly foreshadows the natural trend and outcome of the disease.

Among the 56 cases considered in this paper, ten were readmissions, and it becomes especially interesting to note how these cases were diagnosed by the medical officers of the same hospital before, as well as after, Krapelin's luminous and logical ideas upon classification were adopted as the hospital standard

As would be expected, all the readmitted cases of paranoid dementia belong in the second group. Case 1438 was first admitted to the hospital in 1877, having been disturbed mentally for three months. She was depressed, her conversation dwelling on religious subjects; she refused food through fear of being poisoned, and frequently asked for knives with which to kill herself. After a residence of ten days in the hospital, she was discharged with a diagnosis of "not insane." In 1885, she was readmitted, presenting delusions of suspicion and persecution. She accused her husband of having been the cause of all her trouble. She believed the neighbors were guilty of imaginary offenses and was extremely suspicious in general. The diagnosis recorded upon her second admission was "chronic mania." After remaining one year in the hospital, she was discharged as "stationary." In October, 1900, she was readmitted when the diagnosis paranoid dementia was unhesitatingly made.

Case No. 2080, first admitted in 1881, had been mentally unbalanced for one year, the disease dating from her confinement.

Her mind was full of delusions varied in character. She imagined she was to be poisoned; thought she had been dead for a period of five years, during which time many things hidden from ordinary mortals had been disclosed to her. She expressed delusions to the effect that physicians had caused her many imaginary diseases of the internal organs. The diagnosis recorded upon that admission was "puerperal mania."

After a few months' treatment in the hospital, she was discharged, but returned to the hospital in 1890, still complaining of indefinite ailments but exalted by ideas of self-importance. At the time of her second admission, the diagnosis was "chronic mania." In 1893, she was discharged and remained away seven years. In 1900, she was admitted again under the diagnosis of "paranoid dementia."

Case No. 1708 was admitted in 1895. She had delusions of persecution, imagining that most persons were hostile to her and might kill her. She was greatly annoyed by auditory hallucinations. The disease had manifested itself for a period of between two and three years on admission, and was diagnosed as "chronic melancholia." In July, 1900, she was discharged, and in July, 1901, was readmitted. This time her disease was diagnosed as "paranoid dementia."

Case No. 5768 was admitted in 1891, being recorded as a case of acute melancholia. Although the friends claimed the attack was less than one month in duration, ten years previously, soon after confinement, she was so insane that she had killed her baby. On her second admission, she dreaded some impending calamity and attempted suicide. She remained in the hospital for nine years continuing at all times to entertain morbid fears. She then returned home, but was brought back at the end of six months and this time classed as a case of "paranoid dementia."

Case No. 7647 admitted in 1896 under the diagnosis of chronic melancholia. Her disease had been of eight years' duration, developing gradually and was characterized by auditory hallucinations with delusions of fear and persecution. In 1897 she was discharged "improved" and in 1900, was readmitted and classed as a case of "paranoid dementia."

Case No. 7075 was admitted in 1897 as a case of "acute mania" of six months' duration. She was affected with delu-

sions of suspicions—accused her husband and other relatives of hostile intention. At one time she had delusions of exaltation, calling herself the “Queen of Heaven.” In 1899, she was removed from the hospital, but was readmitted in 1901 under the diagnosis of “paranoid dementia.”

Case No. 188 was admitted in 1869 with a diagnosis of “acute mania.” After five years she was discharged and remained at home until 1898, when she was readmitted. Annoying hallucinations and delusions had characterized her disorder from its inception although they had faded to a great extent at the time of her second admission, when the diagnosis of “paranoid dementia” was made.

Case No. 6788 was admitted in 1894 as one of “paranoia.” She had silly delusions of persecution. She suspected persons of reading her mind and imagined that enemies prevented her marriage to a certain gentleman. She was discharged and readmitted twice. On her second admission “paranoia” was the registered form of the disease, but on the third admission, the diagnosis was “paranoid dementia.” Her mental deterioration had not advanced rapidly, although content of thought was decidedly limited compared with what it formerly had been.

Case No. 6584 was admitted from the Connecticut State Prison in 1893, being diagnosed as “acute mania.” He claimed to have been wrongfully imprisoned, and that he could talk with God. He imagined himself a victim of hostile persons. After a year’s residence in the hospital, he was discharged, but was readmitted in 1896, with the same symptoms. This time, he was classed as “acute melancholia.” He was subsequently discharged and later returned as a case of “acute melancholia.” In 1900, he was again admitted. He imagined men crowded into his cell and held conversation with him. He also claimed to hear little men talking in his stomach. This time his case was diagnosed as “paranoid dementia.”

Case No. 8898 was first admitted to the hospital as one of “paranoia” but was subsequently discharged and readmitted. Upon his second admission in 1899 his case was diagnosed as “paranoid dementia.” He imagined himself affected by currents of electricity or gas manipulated by various persons. His conduct was so threatening that he was regarded as a dangerous patient.



These ten cases are now found to present kindred features and it is probable that not only has their common relationship existed from the onset, but that each would have been diagnosed as the paranoid form of dementia præcox at the first, and all subsequent admissions, had Krapelin's views of this group of deteriorating mental disorders been adopted prior to the earliest commitment of the cases under consideration. As a matter of fact, these ten individuals have now furnished 25 case numbers to the hospital statistics. Several have previously figured in printed tables under two forms of mental disease. As cases, they have been classed in hospital reports as follows:

One case "not insane;" one case "puerperal mania;" two cases "chronic mania;" three cases "acute melancholia;" two cases "chronic melancholia;" three cases "paranoia," and now, these cases representing in published reports five forms of mental disease, as well as the larger class of cases "not insane," are found to present such essential features of resemblance that all naturally fall into one class, the paranoid form of dementia præcox.

Thus tabulated conclusions, obtained according to former doctrines of classification, when compared with those determined under the newer views (adopted in 1898 at the Connecticut Hospital for the Insane), expose the weakness of former theories and suggest the questionable value of old statistics of insanity.

Some temporary or superficial condition of the patients, at the several times of their admissions, must have determined the official medical decision as to their form in all the previous admissions of these ten cases.

Such confusion in classification will not occur again in this institution, but is it not probable that every long-established hospital for the insane can furnish a parallel record of changing diagnosis with readmitted cases?

If the adoption of Krapelin's conception of the deteriorating psychoses, as a working hypothesis (and what more than a working hypothesis can be claimed for any scheme of classification?) will enable alienists to readily locate in their appropriate, permanent class all such cases when examined at any stage of the disease, is not this indicative of a decided progress in the study of insanity?

## DISCUSSION.

DR. HENRY M. HURD: It seems to me that a paper of this value should not go without a word of comment. It enforces the obligation that we all feel to study symptoms. It is not sufficient to name cases but cases must be named after you know something about them. The character of each case must be determined after a careful and thorough clinical history. I fully appreciate much that has been said as to the necessity of not being misled by names, but fear that our friends who are so much interested in dementia præcox are in the same category as those who saw such brilliant things in paranoia some years ago, when we classed many cases as paranoia which we now with more careful study see were cases of paranoid disease. I am inclined to think that the future superintendent of the Connecticut Hospital for the Insane may have occasion to revise certain diagnoses now made of paranoid dementia or dementia præcox.

This merely illustrates what we must get—a better study of our cases. To be able to apply the designation dementia præcox to a case is not after all the real end and aim of study of mental disease. We cannot remain contented with simply establishing the presence or absence of that form of disease in a given case. I am of the opinion that the terms dementia præcox and paranoid dementia are merely stopping places on the way to a better appreciation of two distinct forms of mental disease.

It may be that I am too conservative, but I cannot help expressing the belief that there must be some defect in a classification of cases which compels us to wait to see whether the patient gets well or not before we can decide whether he suffers from dementia præcox or something else.

Sooner or later we shall come to some more satisfactory conception of these cases and I am fearful that the essayist must then cross out once more some entries in his case book.

THE PRESIDENT: I was very much interested in Dr. Page's paper and also in the remarks upon it by Dr. Hurd. The remarks came with singular appropriateness from Dr. Hurd, who was the first author in this country to contribute an article on paranoia to the American Journal of Insanity. He wrote in 1886. I do not wonder that he seems to feel that his cherished paranoia is disappearing from off the face of the earth. (Laughter.) But for his comfort and for the comfort of others like himself, I would refer him to an article which appears in a late issue of the Allgemeine Zeitschrift fuer Psychiatrie from which it appears that a patient in Mannheim was diagnosed as a case of periodic insanity (periodische Verfolgungswahn), and that the same patient went from Mannheim to Weinheim and was there diagnosed as a case of delusional insanity (chronische Verruecktheit mit Verfolgungs- und Grossenwahn), and that not long after that he went to Heidelberg and was there diagnosed by Krapelin himself as a case of paranoia. The author of the article—Schneider I think his name is—points out that the case was not one of paranoia at all but of dementia præcox, as measured by Krapelin's own classification. All of which goes to show that the late Professor Jowett was right when he said that we are none of us infallible—not even our youngest. (Laughter).

## MEMORIAL NOTICES.

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### FREDERICK C. WINSLOW, M. D.

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*By Richard Dewey, M. D.*

Dr. Frederick C. Winslow, of Jacksonville, Illinois, was born October 6, 1850, at Cuyler, Cortland county, N. Y. His father was Frederick C. Winslow, of Massachusetts, his mother, Mary Ann Forbes, of Vermont. These good people descended from old New England families, who were prominently identified with the history of Massachusetts and Vermont. Mr. and Mrs. Winslow, soon after their marriage, came west and settled in Stephenson county, Illinois, in 1836. Mr. Winslow died in 1895.

The subject of this sketch received his preliminary education in the public school of Freeport, Illinois. He graduated at the Northwestern University in the class of 1870, and in the medical department of the same university in 1874. After completing his course in medicine in the university Dr. Winslow passed a competitive examination and received the appointment of first position as interne at the Cook County Hospital, and served a full term of eighteen months in that capacity. At the conclusion of his term of service Dr. Winslow was appointed to the lowest medical position in the Insane Hospital at Jacksonville, Illinois, in 1875, and has been identified with the study and treatment of mental diseases from the date of that appointment to the time of his death. His progress in these studies brought him rapidly to the front as an expert in this branch of medical science. Upon the inauguration of John P. Altgeld as governor in 1893, Dr. Winslow resigned his position in the hospital, but four years later, upon the election and inauguration of Gov-

ernor Tanner, the doctor was appointed physician and superintendent of the Illinois Hospital for the Insane at Jacksonville, which position he held until April 1st, 1901. The new asylum for incurable insane located at Bartonville, near Peoria, being nearly ready for occupancy, and the trustees of the institution being desirous to appoint someone who had had experience at such work, appointed Dr. Winslow as superintendent. This position he held until October 10th of the same year, when he died. His death was sudden, supposed to be from apoplexy. The remains were taken to his old home at Freeport for burial.

In 1878 Dr. Winslow spent several months in Europe studying methods of care and treatment of the insane. In 1881 he was married to Frances Wilson Rockwell, of Jacksonville, Illinois. Her family were among the early settlers of Morgan county, her father being the first postmaster of Jacksonville.

Dr. Winslow had a wide circle of friends among the medical men of the state, and was a recognized authority in the branch of medicine in which he was so much interested. He was prominent in Masonic matters, and had a host of friends in that fraternity. At the time of his death he was Grand Generalissimo of the Grand Commandery Knights Templar of Illinois. He was a Republican and an enthusiastic supporter of that party.



## ARTHUR VALLÉE, M. D.

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*By George Villeneuve, M. D.*

Dr. Arthur Vallée, late professor Laval University, Quebec, late medical superintendent Quebec Lunatic Asylum, died at Quebec, on the 23rd of February, at the age of 54. Whilst others may have obtained more renown, his was a career that few could excel.

A student of Laval University in 1867, he left that institution in 1873, with the degree of Doctor in Medicine. After a prolonged absence in Europe spent in study, he occupied successively the chairs of Toxicology and Legal Medicine, Clinical Medicine at the Hotel-Dieu, Obstetrics, Mental Diseases and that of the History of Medicine. As a professor, his diction was clear, precise and erudite, and up to his closing days he was an honor to his school and to the French Canadian medical profession.

His lectures to the public were always looked forward to with great pleasure by his fellow citizens. Clearness of mental vision, a ripe judgment, together with great aptitude for work, were characteristics that especially fitted him for speculative medical science, and it was in his work as an alienist that the philosophical trend of his mind found its highest expression.

His position as superintendent of the Quebec Asylum gave him the field for prosecuting his researches into questions of mental and nervous diseases, and early in his career his competency and authority were acknowledged.

Unfailing in his loyalty, he was generally beloved by his colleagues. He was a brilliant causeur, refined in temperament, a man of taste, both in manner and in letters, and above all, generous to a fault.

Dr. Vallée had been medical superintendent of the Quebec Asylum since 1885.

## EUGENE G. CARPENTER, M. D.

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*By H. C. Eymann, M. D.*

“Death to a good man is but passing through a dark entry, out of one little dusky room of his father’s house into another that is fair and large, lightsome and glorious.”

Never was the uncertainty of life, and the awful sureness of death more forcibly brought to our minds, than in the sudden invasion of the home of our beloved co-worker. Dr. Carpenter was apparently in robust health, up to the very day of his apoplectic attack. He was stricken Thursday evening, October 16th, 1902, and never wholly regained consciousness, passing away peacefully and without a struggle on the evening of the following Sunday. He was in the midst of his labors, and in the very zenith of his manhood. His record as an alienist, his personal worth and the integrity of his life will be held in sacred memory by his hosts of friends and fellow-laborers in the great field of practical psychiatry.

Dr. Eugene Grove Carpenter was born in the village of Newville, Richland county, Ohio, January 14th, 1857. He assisted his father in the manufacture of leather in his early life, and by this association planted the seed of good business principles, which were so marked in his later career. He obtained his education in the public schools of Mansfield, and the Ohio Wesleyan University at Delaware, graduating from the latter institution in 1882. In 1884 he graduated from the College of Physicians and Surgeons of Baltimore, Md. In 1885 he was appointed assistant physician of the Cleveland State Hospital, then under the management of Dr. Jamin Strong. Here he received his first inspiration to pursue the study of psychiatry. Sitting at the feet of this eminent Gamaliel he became thirsty

for a more extended knowledge of this absorbing field of medicine. His ambition to become a great neurologist and alienist was rapidly being gratified when death touched his elbow and beckoned him to follow. After leaving the Cleveland State Hospital, he practiced for a time in Cleveland, and in 1894 he went to New York for a post-graduate course, and thence to Vienna, where he took a prolonged course of instruction. He also took a special course under Professor Gad at Berlin. In 1896 he went to Heidelberg and took special courses under Professors Erb and Kräpelin, then returning to Vienna, and later to Paris and London. After his return to the United States he was made a member of the staff of the Cleveland City Hospital, and shortly thereafter was appointed on the board of trustees of the Massillon State Hospital. In 1898 he was appointed superintendent of the Columbus State Hospital to succeed the eminent Dr. Richardson, late Superintendent of the Government Hospital at Washington, D. C. He held this position until his death.

From boyhood he was of a happy, cheerful disposition, and was particularly beloved for his integrity. He had an observing mind, and a wonderful memory for details. He was inclined to research, and was never satisfied with a statement until he knew the reason why. His disposition was fraternal, and he was therefore at peace with his brethren. He was kind, yet withal a strict disciplinarian, and was particularly intolerant of any severity toward the unfortunates under his charge. His knowledge of the elementary principles of medicine and physiology enabled him to form a sound judgment. He was not considered a brilliant man of the meteoric variety by his comrades, but his deliberate, careful, conscientious and exhaustive examination of patients placed him in the front rank as an insanity expert, and his testimony had great weight with juries. Even in his college days he was not a book-worm, but the grasp of his mind was such that he could secure the essentials from his books without mastering the details. His excellent memory gave him great advantages, and his ability to call up principles and facts which he had learned in his youth was remarkable.

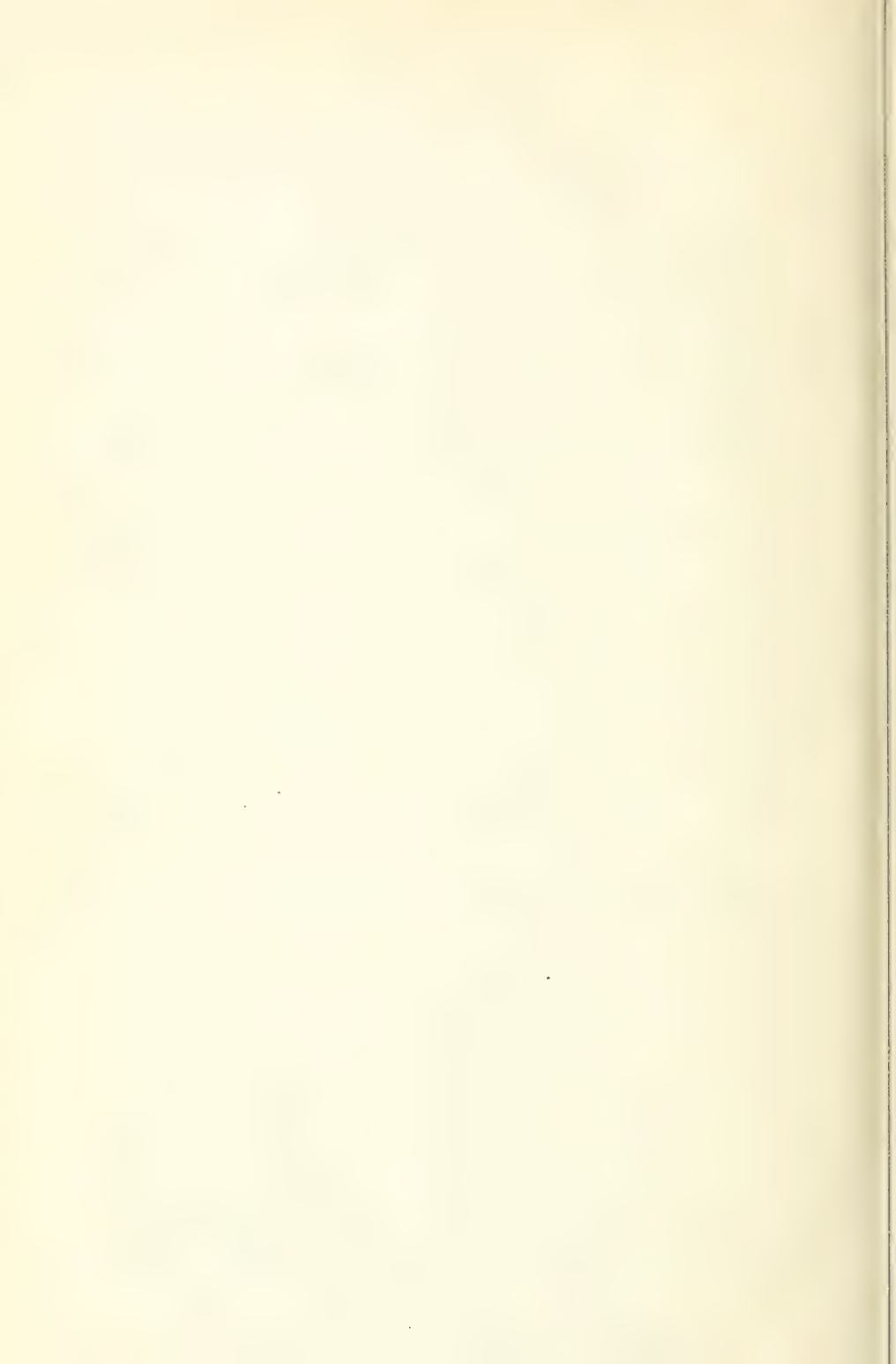
Few men enjoyed life better than Dr. Carpenter. He fully met the standard set by Epicurus: "It is impossible to live pleasantly without living prudently and honorably and justly;

or to live prudently and honorably and justly without living pleasantly."

His domestic life was pure, sweet and admirable. He was twice married, In 1893 he wedded Miss Helen Wells, of Utica, N. Y., whose death occurred five months after. In 1896 he married Miss Lou McCormick, of Mt. Vernon, Ohio. Their wedded life was unusually serene and joyous. His bereaved and heart-broken widow writes me that a few days before he was stricken he said to her, "I am afraid we are almost too happy." His five-year-old son was the pride of his heart, and no matter what the inducement for entertainment or pleasure nothing superseded his love for home and family. He was true and kind and forceful, combining the gentleness of a woman with the firmness of a strong man. He was eminently practical in all the affairs of the vast work committed to his care. His spirit was altruistic, and his great mind and strong body were used wholly for the betterment of his charges.

Life is a crucible; we are thrown into it and tried, and actual weight and value of a man are determined by the good he has accomplished and the place he holds in the hearts of his fellow mortals. Measured and weighed by these standards, Dr. Carpenter was a full grown man. We cannot believe he is dead. We are prone to believe that "living is death; dying is life; we are not what we appear to be. On this side of the grave we are exiles, on that citizens; on this side orphans, on that children; on this side captives, on that freemen; on this side disguised, on that disclosed and proclaimed the sons of God."





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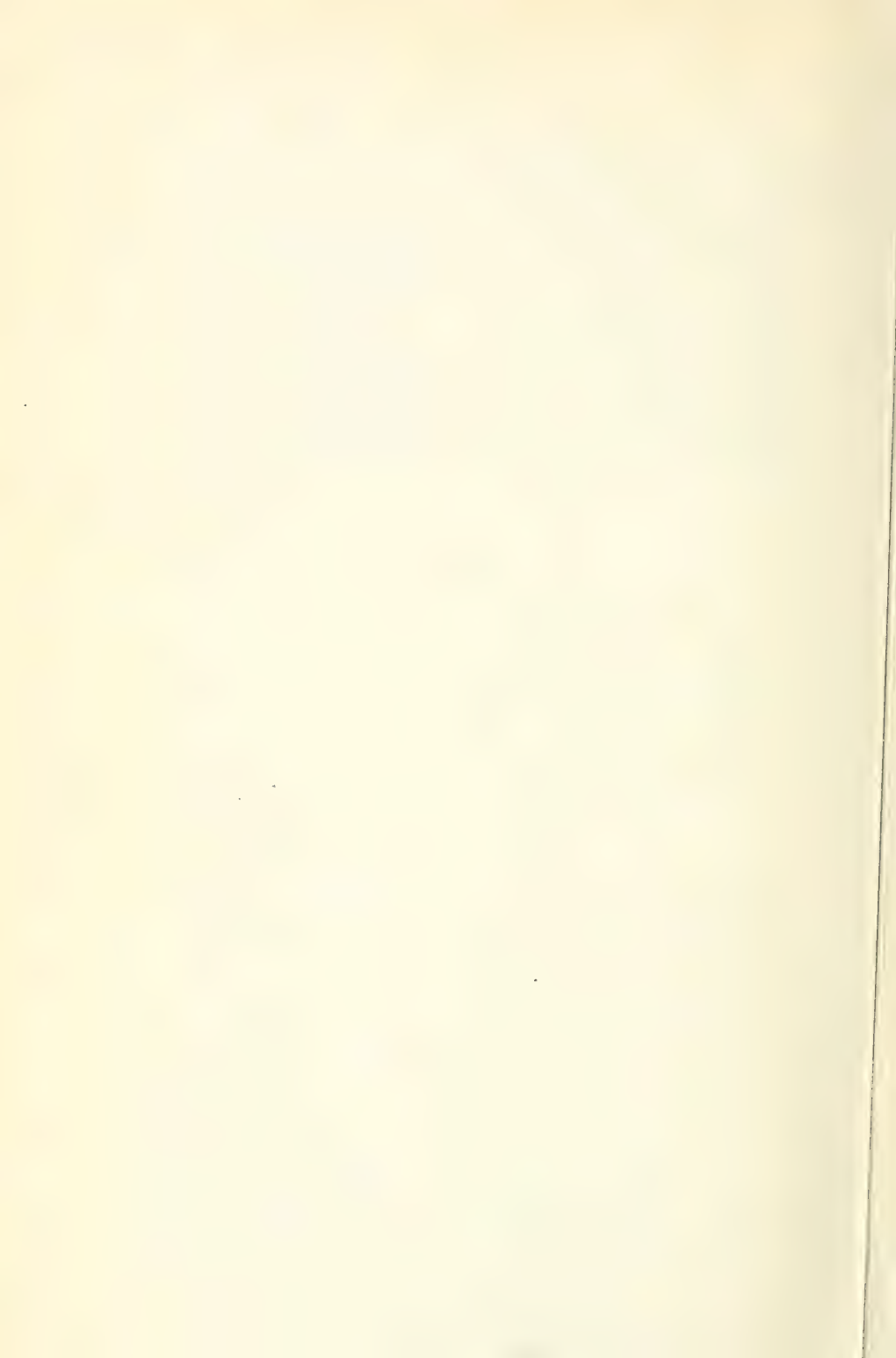
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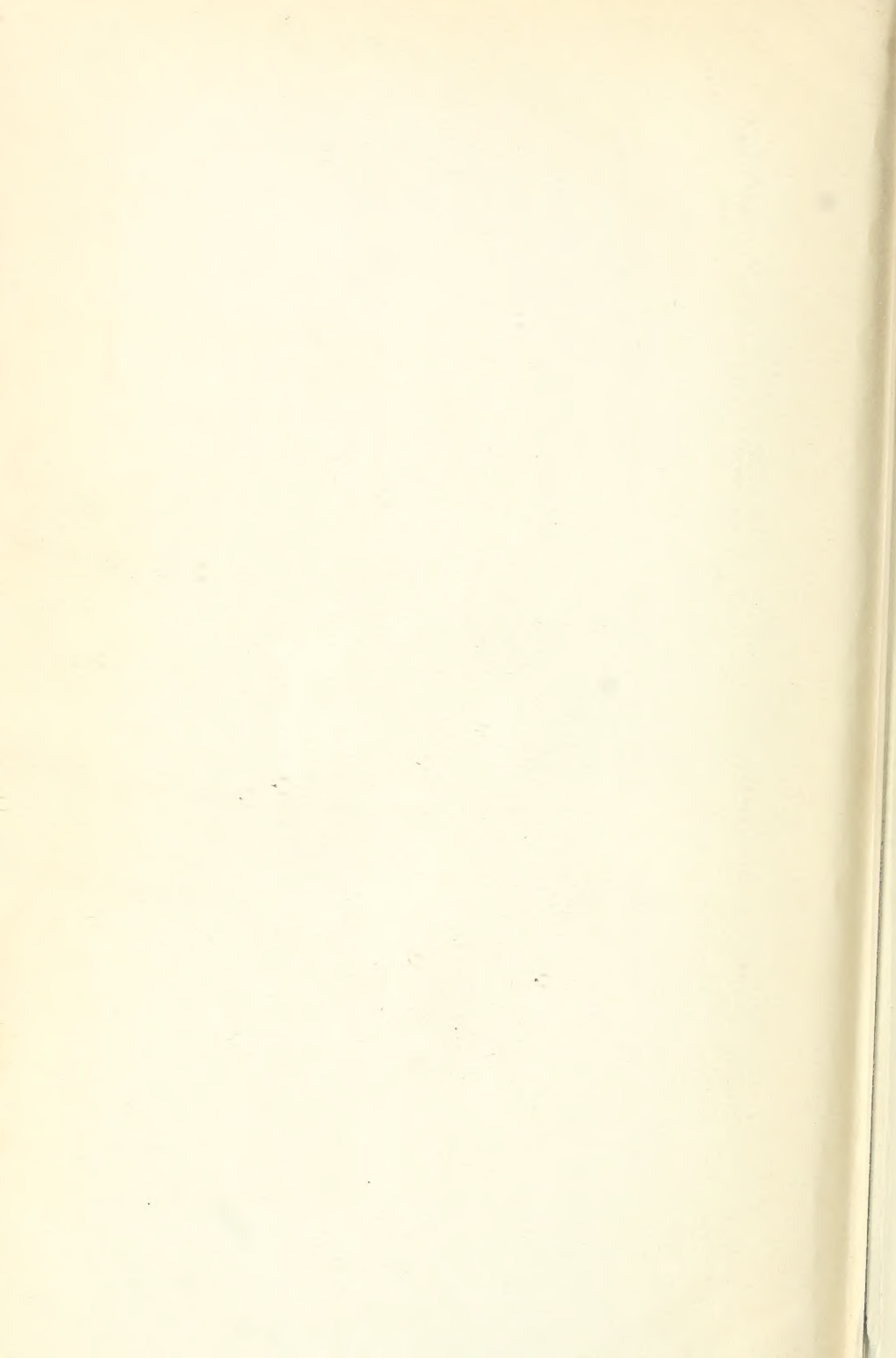
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